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THE FARMER'S MAGAZINE.

VOLUME THE SECOND.

(SECOND SERIES.)

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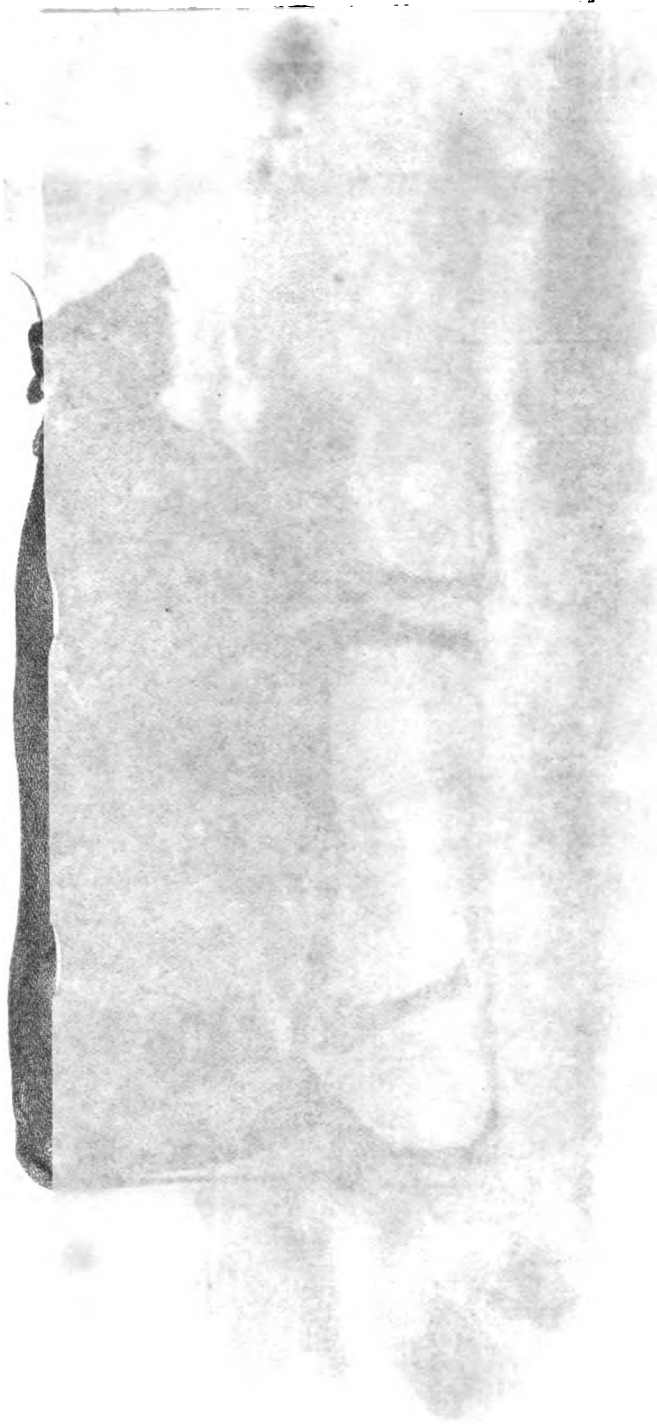
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Water Buffalo

Water Buffalo. This animal is found in the East Indies, China, and other parts of Asia. It is a very useful animal, and is often used for carrying loads.

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THE FARMER'S MAGAZINE.

JULY, 1840.

No. 1.—VOL. II.]

[SECOND SERIES.

PLATE I.

The subject of our first Plate is a Devon Heifer, aged two years and three months, bred by and the property of Mr. Paul, of Compton Pauncefoot, Somerset. This Heifer was exhibited at the first meeting of the Royal Agricultural Society of England, held at Oxford, in July, 1839, and obtained a prize of Fifteen Sovereigns, as "the best in-calf Heifer, not exceeding three years old." This animal, as well as three others of the same breed, for each of which Mr. Paul obtained prizes, were much admired as very complete specimens of Devon Cattle.

PLATE II.

The subject of our second Plate is three Southdown Wether Sheep, bred by and the property of Mr. Jonas Webb, of Babraham, Cambridgeshire, exhibited by him at the Show of the Smithfield Club, in December, 1839, and for which a prize of Ten Sovereigns was awarded to him, as also the silver medal as the breeder. Independent of the known character which Mr. Webb has attained as a breeder of Southdowns, there is an additional interest excited in reference to his flock, he being considered a formidable rival to the old established breeders of this sort of sheep on their native downs in Sussex. We anticipate a hard contest for the prizes for this description of sheep to be awarded at the forthcoming meeting of the Royal Agricultural Society of England at Cambridge, on the 15th instant.

ESSAY,

CONTAINING AN ACCOUNT OF THE IMPROVEMENTS WHICH HAVE TAKEN PLACE IN THE AGRICULTURE OF SCOTLAND SINCE THE FORMATION OF THE HIGHLAND SOCIETY.

(Submitted in competition for the Prize offered by the English Agricultural Society, in 1839.)

Before proceeding to the subject of which he ventures to treat, the writer of this essay begs to premise that it will be his endeavour to avoid entering into any detail, or encumbering the Essay with anything which appears to him not indispensable for accomplishing the task he has undertaken. The limits to which an essay of this kind may be expected to be confined seem to forbid the introduction of lengthened details, either historical or practical, and such elaboration would be the less
OLD SERIES.]

excusable, when the writer recollects not only the extensive knowledge possessed by the honourable gentlemen whose names appear among the directors of the English Agricultural Society, but that the information referred to, may be found in many of the numerous works which have appeared on agriculture. The writer, therefore, humbly conceives, that it would be to impose upon his readers, not only a tedious, but an unprofitable task, were he to do more than trace the leading features in history of Scotch agriculture during the period assigned. He will especially notice those which seem to illustrate the progressive improvement of agriculture, both as a science and as an art; and will point out those circumstances which he conceives have enabled the Scotch farmer, within that period, so successfully to combat the difficulties which soil and climate have presented.

In following out the plan of the essay, it is proposed in the first place, to take a concise view of the state of Scotch agriculture about the year
B [No. 1.—VOL. XIII.

1784, when the Highland Society was instituted, and to point out the chief obstacles which were opposed to the improvement of the art, at that time. In the next place to enquire how far these obstacles have been removed, to trace generally the progress of improvement since 1784, and to notice the nature and extent of the influence which the Highland and Agricultural Society has had in promoting that improvement. And, finally, to describe the progress and present condition of a particular district in which improvements have of late years been carried to considerable extent under the writer's immediate observation.

1. Prior to 1784, there was upon all Scotch farms a recognized division of what was termed infield, or croft lands, and outfield lands, and upon those farms having any proportion of muirs or mountainous ranges, infield or croft lands, outfield lands, and pastures.

That which was then considered the arable land of the country, comprehended what was termed infield and outfield land; the former being that portion of the farm which lay contiguous to the residence of the occupier, was partially enclosed and subdivided, and had been subjected to cropping from time immemorial; the latter being the more distant part of the farm was rarely enclosed or subjected to cropping. At this time the infield land seems to have extended to no more than about a tenth of the whole arable land, infield and outfield.

The pastures comprehending the mountainous ranges and muirs appear to have been equal in extent to more than one-half of all the arable land in the country.

In districts of Scotland, celebrated for their cultivation at that time, enterprising agriculturists were to be found who had adopted plain summer till, and the growing of white and green crops, alternately, on their infield lands, but pasturage did not form any regular part in that rotation, and the sowing of grass seeds and turnips, did not extend over more than a twentieth part of the best cultivated land. The more general practice pursued throughout the country upon the infield land was the system of growing white or corn crops, and green crops without regard to regular rotation, and without the adoption of plain summer till. The system, if it can be so called, was different in almost every county. To the outfield, being about nine-tenths of the whole arable lands, the sowing of green crops had not extended, and when any portion of those lands happened to be cultivated, two or three white or corn crops were taken in succession from the same spot, and then it was left to nature to restore it to grass.

The agricultural plants then generally cultivated in Scotland were the following:—

Wheat. Common beardless, white and red, varieties of *Triticum Sativum*.

Barley. Bere or big.

Oats. Old black; a variety known by the name of white oats, comparatively rare, and the bristle pointed oat in the Highlands.

Rye grass. No particular variety.

Red and white Clover. The same.

Turnips. The common white round; red top white, and green top white.

The following were just beginning, and only beginning to be known, and were introduced but very partially.

The woolly eared wheat.

One variety of two, and one of six rowed barley. The Friesland, Poland, white, Tartarian and Scotch grey and dun oats.

The common grey pea.

The horse bean, and,

Potatoes.

At this time the fertilizing of the soil was entirely dependent upon such manure as was made upon the farm. The application of lime was ill understood, and little practised. To a certain extent shell marle, dug from the bottom of peat mosses, was employed for those purposes to which lime is now applied. This material, however, though it possesses some of the properties of lime, is very far inferior in its adaptation to agricultural purposes. It is always combined with a large proportion of clay, which renders it unsuitable for many descriptions of soil, and from the quantity required for its useful application, the expence of carriage forms an objection to it, almost unsurmountable.

The breeding of sheep and cattle, generally speaking, was entirely confined to the pastures. The former were known by two sorts, the short and long, or black, and whitefaced or Cheviot. The one being considered most suitable for exposed situations and the coarsest pasturage; the other for the sheltered and better descriptions of pasturage.

In cattle, the breeds were more varied, but it would be quite unprofitable here to enumerate these. The differences consisted merely in certain points peculiar to the different districts. In none of the sorts did any of those properties predominate which are favourable to early maturity.

The improvement of the breeds by proper selection not being attended to, and that, in combination with the general practice of overstocking the pastures in summer, and providing no food for the severities of winter, naturally occasioned much mortality, stunted growth in the animals, and a smaller quantity, and inferior quality, of wool, from the sheep stocks. The feeding of sheep and cattle was then carried to a very limited extent, more dependence being placed on the demand from English dealers than on the prospect of being able to bring them to maturity in Scotland. Such cattle as were then fed for the butcher were principally got from the Highlands, the supply from the more southern counties being then very moderate.

Under such circumstances the barriers to improvement, as may well be supposed, were both numerous and formidable.

Agriculturists were still, for the most part, found congregated in villages, or the farm buildings were situated at some extreme point of the farm, in consequence of which the farmer found himself obliged to apply his manure to the lands which lay contiguous to his residence, termed croft or infield land. These lands were but partially enclosed and subdivided. Generally speaking little attention was paid to any regular alternation of white and green crops; and although most farmers were perhaps impressed with the propriety of husbanding infield land to the greatest advantage, few had seri-

ously considered the means of improving it. The drainage of land was imperfectly understood, and but little practised. The economical use and proper application of lime and manure were not properly attended to, and but little understood. There were few varieties of the different grains and the ignorance which prevailed as to the proper adaption of them to different soils and altitudes, the want of convenient markets, and the little attention to the improvement of live stock, all contributed to the hindrance of improvement. The nature of the climate aggravated these disadvantages, and finally the want of roads, the miserable state in which those that existed were kept, and the rude construction of farm implements, were circumstances which, while they afforded proof of the backward state of agricultural industry, contributed at the same time to retard improvement. That most of these impediments have been surmounted, will appear from contrasting the present condition of rural economy with that which has been described.

Subsequent to the termination of the American war, when the paralysed industry of the country began to revive, landowners finding that there was a corresponding movement on the part of the agricultural community, and that the spirit of enterprise and emulation which was evinced pointed at certain methods of improvement, were thus stimulated to enquire to what extent their own interest was concerned in the result, and in consequence of witnessing the beneficial effects produced by the adoption of a more judicious appropriation of the lands into farms, and the advantage derived from providing accommodation on the spot most suitable for the pursuits of the cultivator, were induced very generally to remove, when necessary, the farm buildings to more central situations of the farms, and thus enabled the occupiers to conduct their operations on more certain and economical principles, putting it in their power to secure their crop at the least possible risk and expence, and to superintend the management of it in the most efficient manner. Farmers were thus also enabled to distribute their manure in more regular proportions, and diffuse it more widely over the arable lands, with vast saving of horse labour. The original style of those buildings was very imperfect, both in arrangement and the accommodation they afforded. Subsequently however, about the year 1810, that public spirited and indefatigable patron of agriculture, the late Sir John Sinclair, having his mind ever directed to what was to be beneficial in rural economy, exerted himself in order to rouse the attention of proprietors to the disadvantages that still existed, and succeeded in doing so to a considerable extent. Farms were at that time much enlarged, and new buildings rapidly made their appearance in those districts capable of regular aration. More recently improvements in this respect have been carried still farther, under the auspices of the Highland Society, and now in the most modern construction of farm buildings, due regard is paid to combine, in every respect, what is suitable for the general economy of the farm.

PLANTATION.

When the future productiveness of the soil (as already referred to) seriously engaged the attention

of land owners, it is natural to suppose that the ungenial nature of the climate would occur to them as one of the most formidable impediments in the way. Until that should be ameliorated, it would have been in vain to expect any considerable success in promoting the art of agriculture. Plantation, that essential precursor, became more general, and as the land selected for growing timber was for the most part taken from the outfield lands, or mountain ranges, the bare aspect of these districts underwent a gradual but progressive change, and a sensible benefit was effected by the shelter thus afforded to the surrounding lands. Inroads were thus yearly made on the uncultivated portion of the arable lands, and large tracts subjected to regular aration. The change became more perceptible during the period of the French war, when landlords had the means of expending a portion of their income, not only on necessary, but ornamental plantation. Within the last twenty years the planting of waste and unproductive ground, has been carried to considerable extent, the climate has thus been sensibly improved and an impetus given to the extension of good husbandry. Many proprietors who have distinguished themselves in this respect, might be mentioned, as corroborative of the preceding statement, but it may suffice to allude to the larch plantations on the estate of the Duke of Athol in Perthshire where utility and profit seem to go hand in hand. These extend now to upwards of nine thousand Scotch acres. The late duke found that the larch would thrive at an elevation of sixteen hundred feet above the level of the sea, while the Scottish fir was barely able to live at nine hundred. At this elevation Scottish firs forty-two years old, were not taller than six feet, while the larches ten years younger, were from forty to fifty feet. In a lower part of the plantation the scottish firs were twenty feet, the larch from thirty to forty. This description of larch has been found to grow in height on an average of the first fifty years sixteen inches. In girth it gains one inch per annum, till it be twenty-four years old, and during the next twenty-four years, it gains one and a quarter inch. The soil of the duke's plantations is disintegrated gneiss, clay, slate, and mica slate. On a wet subsoil the larch rots in the heart at forty years old. The plants are set two yards apart, and are thinned from the twenty-fourth to the thirty-sixth year to four hundred per acre. The weedings are worth 12*l.* per acre. The value of the timber at the end of seventy years, taking four hundred trees to the acre, (each containing a load of timber at fifty shillings) may be estimated at 1000*l.* Taking into account the value of the weedings, and the charges of planting and fencing, rating the land at one shilling per acre, and computing at four per cent. compound interest, the value of an acre of planting may be taken at 40*l.*

DISADVANTAGES ARISING FROM THE WANT OF INTERNAL COMMUNICATION.

The obstacles which were opposed to the improvement of agriculture from the want of proper roads, even so late as 1783, were experienced to a lamentable degree. Not only was it impossible to effect improvements from want of internal communications, but the defects of those public roads then in existence operated most prejudicially to the Cultivators who sent the greatest proportion of their produce to markets. Not only was additional expence incurred in doing so, but they were circumscribed in the means of replacing the abstraction of the home manure. By reference to the

evidence given by Mr. Mc. Adam, before the Committee of the House of Commons in 1819, it appears that when that gentleman visited Scotland in 1783, although the Turnpike Acts had been in existence for twenty years, many of the roads were unmade. The new roads afterwards constructed, were productive of the best effects, but still so late as 1811 the system of making them was very defective, as appears from a discussion which took place about that time in the House of Commons, when the Scotch roads were universally admitted to be much worse than those in England, and indeed to be in a most deplorable state. Gradually however, since that period, but more particularly after the Macadamizing system was generally adopted, they began to vie with the best in the kingdom, and thereby every facility has been afforded to the introduction of the most economical method of transporting farm produce, and the procuring of extraneous manures. The roads termed Parish Roads are now much improved, and agriculture has been sensibly benefited in consequence.

ENCLOSURES.

As farm buildings came to be placed in the most advantageous situations and plantations extended, greater attention was paid to the enclosing and subdividing of the land, according to the nature of the soil and the size of the respective farms. Improvements in this respect became most observable over the arable lands during the course of the war. Subsequently greater attention has been paid to the construction of fences when made of stone, and when of thorns to the proper methods of planting and afterwards nursing them. More recently the advantages of enclosures were extended to the pastoral districts, by all which means the Scotch farmer has been enabled to adopt a more perfect system of cropping and pasturing his land.

CROPPING.

Subsequent to 1784 and prior to 1800, no perceptible change, generally speaking, took place in the system of cropping, described in a former part of this essay, with the exception that the growing of green crops, was extended to the enclosed portion of the outfield lands. At this last mentioned period the high price realized for all descriptions of farm produce stimulated to the adoption of growing white and green crops, alternately, farmers then finding that by this means only, the soil could be rendered most productive. Clear summer till, appears then to have been more generally introduced as part of the rotation, and was considered a material improvement, the land being formerly imperfectly laboured, and cleaned. Subsequent to the termination of the war, when the price of farm produce receded, a proportion of pasturage then formed a part, the advantages of which were soon made apparent; the cultivator being thus enabled not only to reduce his general expenditure, but recover the land that had been previously exhausted by a long continuation of uninterrupted cropping. Afterwards, when agriculturists could command the facilities supplied by the introduction of bones, and rape-cake, as manure, turnips were considered entitled to have a greater share in that rotation, being found advantageous, not only as food for the additional live stock upon the farm, but as the means of producing a greater quantity and a superior quality of manure. From these circumstances a vast contrast can now be made. Instead of the attention of the farmer being, as formerly, confined exclusively to the infield land, a regular alternation, strictly enforced

and attended to, now extends over the whole farm. The manure also is now properly distributed, according to the nature of the soil and cropping. The leading features of the present rotation, consists in the growing of white or corn crops, and green crops, alternately, varying the description of crop according to the nature of the soil and local situation. The greatest possible attention is paid to the turning over of the land in proper season,—to the thorough cleaning of the fallow, whether in clear summer till, or in green crops; proper care is also taken to observe the most advantageous time for depositing the seed, and the most proper state of the land for its reception, and particular attention is given to the selection and changing of seed corn, and all the other roots, grasses, &c. now cultivated.

FARM IMPLEMENTS.

The rude construction of farm implements at the commencement of the period to which the observations in this essay principally apply was a great bar to arable culture. Shortly afterwards the plough, (which of all the implements of agriculture is the most indispensable, being the first breaker up of the soil, and the precursor to every after process,) having been reduced to scientific principles by the late Mr. Small, a mechanic in Berwickshire, found its way into the best cultivated districts and supplanted the old unwieldy implement that preceded it, with its expensive accompaniment of oxen in addition to horses. The attempts made by the ingenious mechanic the late Mr. Meikle to substitute the thrashing machine for the flail, excited considerable interest. Until, however, the impetus which was given to agricultural exertion during the eventful period of the war, farmers generally were not in possession of those essential requisites to the perfection of rural labour. The change which then took place, was as rapid as it was important. Farmers with avidity possessed themselves of all the implements which could be procured, and this demand was met by a corresponding exertion of ingenuity on the part of mechanics, and thus the farming community were yearly benefited both by the introduction of new implements, and by improvements in the construction of those then common. The improved state of the roads has enabled farmers to avail themselves of a lighter and simpler construction of carts, drawn by one horse, which has effected great saving in rural economy, more particularly in situations removed from markets, or where extraneous manures require to be brought from a distance. The thrashing machine, one of the most important of agricultural implements, became very general, and conducted vastly to the benefit not only of the agricultural community but of the country generally. It would be difficult to estimate the advantage conferred by this powerful agent, but it may be mentioned that some interesting and apparently sound calculations on the subject will be found in a work published by an intelligent writer on agriculture, the late Mr. Browne of Markle, in 1811, at which times the machines were by no means so numerous as they are at present, nor so highly improved. In his treatise on rural affairs Mr. Browne has presented the following estimate of the profit that might be derived by the public were thrashing mills used in every case in this country for separating corn from the straw. He calculates:—
1. The number of acres producing grain in Great Britain, 8,000,000. 2. The average produce in quarters at three quarters per acre at 24,000,000. 3. The increased quantity of grain produced

by thrashing mills instead of using the flail at one-twentieth part of the produce or in quarters at 1,200,000. 4 The value of that increased quantity at forty shillings per quarter, at 2,400,000l. 5 The saving in expence of labour at one shilling per quarter, at 1,200,000l. 6 The total profit per annum to be obtained, at 3,600,000l. 7 The actual profit per annum on the supposition, that only half of the grain produced were thrashed by machines, 1,800,000l.

Sir John Sinclair's remark upon this is deserving of attention. "It is not then to be wondered at, that he should pronounce the thrashing mill to be the most valuable implement in the farmer's possession, contending that it adds more to the produce of the country, than any invention has hitherto done, and that it ought to be accounted the greatest improvement that has been introduced into Great Britain during the present age. Since that time also, steam has been attached, which has still further increased, in an economical point of view, the advantage of this implement.

DRAINING.

Draining of land in Scotland, on anything like proper principles, was not much understood nor carried beyond the most restricted limits, until the publication of Mr. Jas. Johnson, land-surveyor, in which he detailed the practice of Mr. Elkington, when the object was the removal of land-springs. This work made its appearance about the year 1800, when, fortunately the farming community was in the most favourable circumstances to profit by the hints it contained. It thus proved highly beneficial. As much of the land in Scotland however, is retentive and not applicable to Elkington's system, improvements in this respect were only effected within certain bounds. At a later period, viz., about the year 1813, the Duke of Portland introduced the practice of tile draining upon an extensive scale. He erected three tile manufactories upon his estate in Ayrshire, and thus proved the advantage derivable from furrow-draining by means of such materials. The example of this nobleman, so worthy of imitation, did not at first meet with that attention it deserved, and fully sixteen or eighteen years elapsed before the agricultural community generally, admitted that furrow-draining, by means of tiles and other materials, was the only effectual method of relieving land from excess of surface water. Since the last mentioned period, manufactories of tiles are numerous all over the country, and thus, by means of Elkington's system, in combination with furrow-draining, much has been done to alter the appearance of and encrease the produce of the arable lands throughout Scotland. The former sickly appearance of the crops, the late period of ripening, and the uncertainty and risk attending the operations not only in harvest, but in spring, autumn, and winter, in a climate so variable, have been moderated, or in some degree removed. The land is not liable to poaching. It can be more thoroughly laboured and cleaned; and, generally speaking, ploughed at any season, and in most circumstances with advantage. Labour is economized, the benefits of stimulating and enriching manures secured to the fullest extent, and a more ample produce and superior quality of grain obtained.

With regard to the drainage of land laid out in pasture, the effects have been no less obvious. Rushes, and other aquatic plants have disappeared. The finer grasses have risen more abundantly, and

are not injured by the treading of the cattle. The capabilities of maintaining stock have been thus increased to an incredible extent, independent of the superior size and quality of the stock produced. When cut in hay, the quality of those new grasses is superior and of greater value, and in addition to what has been already stated, green crops can now be grown with advantage on every part of a well-drained farm, and these profitably substituted for a clear summer till, by which last process alone the land could have been previously dressed in a husbandmanlike manner.

The drainage of hill pasture land has been practised to great extent within the last twenty years. This improvement is effected by cutting surface drains about fourteen inches deep, (and generally of the same dimensions in breadth) and directing them obliquely along the declivity. This has enabled stock farmers in these districts not only to adapt a more suitable and profitable description of sheep in many cases to the pastures, but to improve the quality of the old stock, where change was advisable. The unwholesome quality of the plants produced on such pastures, with the other disadvantages attending the sheep treading constantly on land surcharged with water, proved fatal to vast numbers, from various diseases, but more particularly that destructive malady, the rot. Independent therefore of the improvement that has taken place in the description of grasses natural to such altitudes, and the benefits resulting to the occupiers in consequence, the climate of the country has been sensibly improved, and greatly to the benefit of agriculture. The effects of general drainage is peculiarly observable in the rapid increase of the rivers throughout Scotland after rain, and the as sudden subsidence when the weather becomes dry. It is also worthy of remark that agues, so prevalent in Scotland at one time, are now seldom or never heard of.

LIME AND MANURES.

As the country became intersected by proper communications the use of shell marl, as a manure, was gradually superseded by the employment of lime,—which, although brought, it might be, from a great distance, was found to be more beneficial and economical. Some idea of the extent to which it is now employed on land in Scotland may be formed by reference to the Highland Society's published Transactions, (vol. 11. p. 57). From an enquiry instituted by that society in 1834, the lime used as manure in the previous year, 1833, is estimated in round numbers at 5,060,000, bushels. The general application of lime, in combination with drainage, has been the means of reclaiming, and bringing into a high state of cultivation, a very great extent of the outfield lands. More recently ground bones have been extensively used in the growing of turnips, and the use of rape cake, as a manure, has been found very efficacious, and has rapidly increased. So late as 1815, it was with difficulty the Scotch farmer could be induced to make trial of these manures, even experimentally. Both, but particularly bone dust, are now in great request, and some idea may be formed of the extent to which they are employed from the following statements, extracted from a return made to Parliament by the Inspector General of Imports and Exports in 1833.

REPORT OF COMMITTEE OF HOUSE OF COMMONS.

Declared value of bones of animals and fish

(except whale bones) imported into Scotland to be used as manure....In 1821 £ 69 17 0
dododo1829 12,322 4 9
dododo1832 13,908 1 1

} Declared Value.

	cwt.	qrs.	lb.
Rapeseed, linseed, and other oilcakes in.... 1821	none		
do....do....do.... 1822	100	0	0
do....do....do.... 1829	34,587	1	27
do....do....do.... 1832	444,491	3	21

What proportion rapeseed bears to the other materials with which it is combined in this return does not appear, but there can be no doubt the quantity was very great.

Mc'Culloch's STATISTICAL ACCOUNT, 1837, vol. 1. pp. 529.

According to the best authorities the arable lands in Scotland are estimated at about 2,400,000 acres, which are distributed as follows:—

In Wheat.....	220,000
Barley.....	280,000
Oats.....	1,275,000
Beans and Peas.....	100,000
Potatoes.....	130,000
Turnips.....	350,000
Flax.....	16,000
Gardens.....	32,000

2,403,000

When it is considered therefore, that rapeseed is applied, more or less to each of these divisions, or descriptions of crop, in Scotland, it appears evident that the quantity made use of composes by far the larger part of the aggregate amount in the return. It could have been wished that access might have been obtained to a similar official statement showing how far the importation had increased since 1832. But although there is no opportunity of making such reference, the following account, which has been kindly furnished from a source which may be relied upon, will, to a certain extent, supply the defect. It exhibits a statement of the amount of duty upon bones and rapeseed, linseed, and other oilcakes, imported into the United Kingdom for home consumption, during the two years antecedent to the reduction of duty in 1816, and again in the year 1837.

Bones of Cattle, and of other animals, and of fish (except whale-bones).				Rapeseed, linseed, and other oil-cakes, entered at the Custom House, under one general head.			
Declared Value.	Rate of Duty.	Amount of Duty.		Quantity	Rate of Duty.	Amount of Duty.	
In	£	£ s. d.	£	Cwts.	per cwt.	£	
1814	557	31 13 4	176	43,011	1 7	3,395	
1815	585	31 13 4	265	16,897	1 7	1,300	
1837	245,823	1 0 0	2331	795,851	0 2	6,756	

In the foregoing table there is no distinction of the quantities imported into Scotland, but it seems not too much to assume that the ratio of increase in that country has been equal to that which has taken place in other parts of the kingdom. Upon this data it will be found that the declared value of bones imported into Scotland was 37,205*l.*, while the amount in 1832 was only 13,908*l.*, being little more than a third of that amount. Similarly the quantity of rapeseed, linseed, &c., &c., imported into Scotland, in 1837, will be found to be 82,788 cwts., the quantity in 1832 being only 46,238, not much more than the half. There is no doubt the

demand from agriculturists in Scotland has continued to increase. Having alluded to bones and rape cake, in exemplification of the extent to which manure is now employed, the writer may further observe that at no distant date the town of Edinburgh paid many hundreds per annum to induce people to remove the dung from the streets. In 1813, after the adoption of a different method, the sum it sold for amounted to 915*l.*, and what has already been disposed of in this present year, 1838, amounts to 8,890*l.* The quality of this description of manure has been yearly falling off from local causes.

That the better cultivation of Scotland may be attributed to such causes, no one can dispute, and that by the spirited manner in which farmers availed themselves of them, the rent of land has been maintained, is equally undeniable. The growing of turnips and barley has been thus attempted where formerly the hilly nature of the land presented a complete barrier to the application of manure. Independent of the advantages gained from the increased breadth now sown with these crops, in situations removed from large towns and cut off from local advantages, the superior culture of the artificial grasses has been secured. Thus additional facilities for reproducing manure has been sensibly increased.

Farmers in the neighbourhood of distilleries have, in addition, derived great advantage from the use of the offals in feeding their live stock, and improving the quality of the farm-yard composts. Other extraneous manures, such as soot, liquid manure, &c., have been found most beneficial in Scotch practice for certain purposes. In farm-yard dung there has been a decided improvement in its preparation and application. The modern style of farm buildings has enabled the farmer to keep more live stock in the yards, and the general practice of feeding these, in part with linseed cake, has not only increased his means of doing so, but at the same time enriches the manure, whilst greater attention is now bestowed upon the collection and applying of it afterwards.

VARIETIES OF GRAIN.

The introduction of many new species and varieties of grain, and the superior knowledge which has been acquired as to their adaptation for certain soils and situations, in a great measure relieve the farmer of that risk, to which he was formerly exposed, by sowing the kinds not suitable for the land. There is no situation, suitable for cultivation, where a variety may not now be sown, which in an average of years will mature and make a moderate return. However much may remain to be accomplished, it is gratifying to reflect upon the progress which has been made in ascertaining the proper descriptions to be sown, in order to insure the greatest amount of produce. The agriculturist has now the selection of upwards of

55	varieties	of wheat.
17	"	of barley.
38	"	of oats.
163	"	of potatoes.
13	"	of beans.
20	"	of peas.
39	"	of turnips.
17	"	of clovers,

and a much extended and yearly cultivation of natural permanent grasses.

The substitution of stock, instead of sample markets, within a recent period, has been of great utility to the grain growing farmer, and the more

judicious arrangements now made for the sale of live stock at regular intervals, and in central situations, has tended much to facilitate the operations of the stock farmer. In Edinburgh, down to so late a period as the year 1827 there was no stock market. There, and throughout Scotland, grain was sold by sample, a mode of dealing attended with many disadvantages, and peculiarly liable to engender disputes. At the time mentioned, a stock market was opened in the metropolis, and the benefits of it very generally felt. The practice was followed successively in other places, and has now been generally adopted over the country. Few had debts now occur; in general, the farmer can always have an opportunity of either increasing, or decreasing his stock any week in the year, and every transaction can be entered into with the greatest safety, as credit is never expected to be given or received.

LIVE STOCK.

In this branch of rural economy, very great improvements have taken place since the period already alluded to, when pasturage assumed a prominent part in the rotation of cropping practised in Scotland. The introduction of short-horned cattle, and Leicester sheep, led to a comparison between them and the live stock of the country. Observation, experiment, and enterprise, were thus excited, and a much more correct judgment has been imparted to the Scotch stock farmer, of the properties, and habits, both of native and foreign breeds. He has also been led to give more rigid attention to rearing and feeding, and to the propriety of availing himself of the increased facilities for securing early maturity of such stock. These improvements began to appear at the same time with the improvement of pasture lands, which, as has been mentioned, took place since the termination of the last war. Each of those improvements have had a reciprocal effect upon the other, and to those who were acquainted with some of the Muirlands in Scotland at a prior period, the combined effect which they have produced in altering the face of the country, and exhibiting verdant fields where formerly there existed nothing but perhaps a barren moor, has been indeed surprising, and would scarcely admit of being described without risk of appearing to exaggerate.

Other circumstances have been instrumental in promoting the course of improvement. Thus the improved education of the farmers generally, and the desire which has been engendered of obtaining the best information on their pursuits, may be mentioned as having had a powerful effect. This was facilitated by the numerous publications which have issued from the press on agricultural subjects. The surveys of the different counties enabled a comparison to be made of the practices of others; the systems of management detailed in such surveys, being chiefly confined to what had been adopted by the best cultivators; more particularly, however, it may be observed, that much benefit resulted from Sir John Sinclair's statistical account of Scotland, having attracted very generally the attention of Scotch farmers. Indeed the information contained in that work was in a great measure obtained from their own class, and thus an additional stimulus was given to farther enquiry and observation.

PEASANTRY.

It would be unpardonable not to notice with marked admiration, the very great improvement, both physically and intellectually, of the peasantry. That such improvement has gone hand in hand

with the progress of civilization, and the application of science and art to the practice of agriculture must afford an agreeable subject of contemplation to the philanthropist. The peasantry of Scotland are an educated, shrewd, and enlightened class. They have no prejudices against the introduction of machines, for saving labour, and there are few who do not possess very general knowledge of country affairs. The chief amelioration which has taken place of late years in the condition of this class consists in the more general observance of sober habits—the increased taste for personal and domestic neatness and comfort, and the progress they have made (not inferior to that of any other class) in the acquisition of useful information, and the practice of those arts which fall within their sphere.

The establishment of a chair of agriculture in the Edinburgh University has not been without its beneficial effects. That chair was first filled by Dr. Andrew Coventry, whose appointment took place in 1790. This gentleman continued to fulfil the duties with great honor to himself, and advantage to his pupils, until his death in 1831. Upon this event a successor was fortunately found in the present incumbent, Professor Low, whose scientific acquirements and practical knowledge justly entitle his instructions to that respect which they have universally obtained.

The limited capital amongst the farmers 54 years ago, precluded them from carrying any material improvements into effect, but this difficulty was subsequently obviated by the liberal accommodation granted by the Scotch banks, which enabled the farmers to bring their land into a better state of cultivation, and thereby to increase their produce, and derive the greater benefit from the high prices in the course of the French war.

The advantages already alluded to could have operated only to a limited extent, had it not been for the general and indeed almost universal practice in Scotland, of landlords granting leases for a term of years, and the absence of tithes fortunately afforded free scope to that impulse. Finally it may be observed that the recent improvements in steam navigation have been of considerable benefit to the Scotch farmer, in affording the facility of conveying his produce to the best markets.

It is now time to enquire how far the Highland and Agricultural Society of Scotland, has been instrumental in promoting general improvements. There can be no doubt that the meetings and deliberations of the society have had a powerful influence in directing a more general attention on the part of landlords to rural affairs, and thus leading them to acquire a more minute knowledge of farming operations, and of the best means of improving their estates. The premiums offered by the society for essays on agricultural subjects, have induced practical farmers to communicate the result of their experience; and as much judgment was displayed in the selection and manner of publishing those essays, much valuable information was thus diffused, and farmers were stimulated to further enquiry.

The attention of the Highland Society was in the first instance directed exclusively to the improvement of the northern counties, and the amelioration of the state of the inhabitants there. The benefits conferred on those districts by the exertions of the society, exceeded all expectation, but these initiatory steps in the progress of the society, are fully detailed in the society's published transactions, and it seems superfluous here to

refer to them more particularly. The following observations, therefore, will be confined to the consideration of the influence the society has had in promoting general improvement, by subsequently extending its patronage to the whole of Scotland.

The society offered liberal premiums to the occupiers in the different districts of Scotland, for reports of actual improvements of waste or unproductive land, and, in consequence, numerous reports were made by practical farmers. By this means much valuable information was elicited with respect to the method adopted, and the success or want of success of those employed. In general the improvements were effected by draining and liming; the reclaimed land being either continued in permanent pasture, or brought into a regular course of aration, as was considered most applicable to the nature of the soil, or situation of the land. The society having discovered that the method of under-draining was imperfectly understood in Scotland, deputed a person to go to England and study the art under the celebrated Mr. Elkington. On his return, the society patronized the publication of his observations on Mr. Elkington's system, and took every method to ensure an extensive circulation of the work. This report attracted great interest in the farming community, and the draining of land was afterwards pushed to greater extent, and on better principles than heretofore. The society then offered premiums to the farmers who executed the greatest amount of effectual draining upon their respective occupations. Subsequently the attention of the society was directed to furrow draining, and, under its auspices that system has been extensively adopted, with the most beneficial effect. Much valuable information has since been supplied, regarding the different systems practised, and the best methods of manufacturing tiles. The cost of that article has in consequence been much reduced, and the means of carrying on this species of draining have thus been brought within the reach of farmers, in situations of the country, where other materials could not be procured, for rendering that method of improvement practicable. It would be unnecessary to do more than allude to the cultivation of turnips in the southern parts of Scotland, so long celebrated for the superior culture of that valuable root, but in the extension of that system to other districts, the society has borne a prominent part, by offering premiums to the occupiers of land where turnips were not grown, to the extent to be available in the feeding of live stock, the land in those districts being suitable to the cultivation of this important root. Many reports were afterwards transmitted to the society from different competitors describing their mode of culture, and the extent to which they had carried it.

In the improvement of farm-stock the exertions of the society have been most successful. The liberal premiums they awarded to those enterprising individuals who distinguished themselves in the introduction of the improved breeds of cattle and sheep, gave a powerful stimulus to exertion. The imperfections of the native breeds were thus made more evident to stock farmers, and the national prejudices subdued by the advantages which were made apparent, by a judicious selection of females as well as males. Much benefit has been derived from the society obtaining and publishing essays, written by practical men, upon the best methods of rearing and fattening stock, and providing a winter supply of

food for sheep, and thereby increasing their produce, and improving the staple of the wool.

Amongst the many improvements which have been effected in Scotland by the Highland Society, not the least important has been the establishing of a veterinary school, by means of which a knowledge of the treatment of the diseases of domestic animals has been very much improved. This school was established in 1823, under the patronage of the society. For five years previous to that time, however, Mr. Dick, the present professor, had regularly delivered a course of lectures which had been gradually attracting public attention. The patronage of the society gave a new impulse to the energy of the school, and a great increase of the number of pupils took place, which has gradually continued, until the number last session had increased to seventy-one. It may be interesting to know somewhat of the details connected with this subject, the manner in which it is conducted, and the expenses connected with it. The expense of the institution to the society is only 26l. 5s. per annum, as an allowance towards certain extra expenses; all the other burdens connected with it being supported by the professor out of the fees of the pupils. The fees consist of either three guineas for attendance on the lectures each session, or ten guineas as a fee for liberty of perpetual attendance on the lectures, and also for liberty to attend the practice of the professor. The acknowledged zeal and ability of the professor, and the moderation of the fees exacted from the pupils will in some degree account for the gradual prosperity of the school.

The lectures consist of demonstrations of the healthy structure of the domestic animals, making the horse the standard, and comparing the structure of the other animals with him. Having examined the healthy structure, the alterations induced by disease are then shewn and compared with the normal parts, and the means of prevention and cure are then explained. The course extends to about 90 lectures. The practical pupils are examined weekly, and in order to afford sufficient opportunities to the pupil to become practically acquainted with his profession, the professor has established a veterinary dispensary, where he gives advice and medicines gratis, for the animals belonging to the poorer class of carters, hackney men, and cow feeders who apply. The pupils are permitted, after having obtained a sufficient degree of acquaintance with the subject, to perform the requisite operations prescribed for cases, under the directions and superintendence of the professor. The practical pupils enjoy great advantages from the liberality of several of the professors of the university, and the private lecturers allowing them to attend their lectures gratuitously, and the readiness with which animals are procured for dissection in Edinburgh in consequence of the small value of the carcass ensures the pupil being well versed in anatomy. At the conclusion of the second session's attendance the pupil is publicly examined by a committee of medical gentlemen, appointed by the Highland Society, and those who are found qualified receive a diploma. The benefits derived from this institution are such as might have been anticipated. Farmers, as well as country blacksmiths, have acquired a knowledge of the structure and constitution of the horse and other animals, which 20 years ago was scarcely to be found, even among the profession in large towns.

SEEDS, PLANTS, ROOTS, &c.

In accelerating the acquirement of a knowledge of the adaption of the different sorts of seeds, and

plants, to peculiar soils and altitudes, much has also been done by the enlightened exertions of the society. The attention which has been directed to this subject, has led to the improvement of many sorts by careful selection, and culture, to the production of new varieties of superior qualities; and to the introduction into general culture of new genera and species before unknown, or known only botanically.

In the appointment of Mr. Charles Lawson, of the firm of Peter Lawson and Son, as their seedsmen, the society have possessed themselves of a valuable auxiliary, whose extensive knowledge and indefatigable zeal it would be impossible to overrate. He periodically perambulates, not only his own country but the continent, in search of fresh information, which he hesitates not immediately to put the community in possession of, by his publications. At great personal expense he formed, under the patronage of the society, a museum consisting of specimens of seeds, roots, plants, &c., and also models and specimens of all the improved implements used in the cultivation of the soil, the latter of which were supplied from the collection of the Highland society. To this museum the public are invited free of expense. Agriculturists are encouraged to send specimens of the grains, roots, &c., with a description of the circumstances under which they have been produced; and thus by a comparison of all the various sorts collected, the means are afforded of obtaining information as to the most profitable for their adoption.

The annual meetings and exhibitions of this society, shifting, as they have done, from one district of the country to another, have been of great national importance, in congregating on these occasions vast assemblages of all classes of the agricultural community, in the diffusion amongst them of useful practical knowledge, and creating in them a spirit of emulation in their respective spheres of life. Landlords have been brought in contact with the tenantry, in the competitions of their produce. Practical farmers have more duly estimated the real qualities of their own stock, from seeing them placed in competition with others, and have thereby been enabled to form a more correct judgment of the most valuable properties of the domestic animals. The attention of the farmers has at those meetings been beneficially directed to specimens of the most improved seeds, roots, implements of husbandry, drain tiles, wool, cheese, butter, &c., &c., and other useful husbandry articles, then exhibited. The society's patronage has also been given to district exhibitions of farm-stock, and the premiums then given have been attended with great local benefit. Shepherds and other farm servants take great interest in attending those meetings and exhibitions, and it cannot be doubted that their ideas have, by these means, been enlarged and a more perfect knowledge imparted to them in their respective spheres.

The writer will now proceed to the last division of his subject, viz., to allude to a particular district where improvement "can be proved to have taken place." And he selects Peeblesshire, as being one of the most elevated inland counties, and being thus cut off from the advantages of sea-ports, canals, or railroads. It is a district, so to speak, confined to its own resources. It may also be considered as a recommendation for the purpose in view, that Mr. James Allan, one of the tenantry of the district, was the first to carry off the Highland Society's medal for the improvement of waste land. This prize was awarded previous to 1801, and was justly earned by the improvement of 50 acres of barren heath land, situated on the side of a very steep hill, which, in

spite of all the difficulties of soil and situation, was changed in the space of three years from a sterile and unproductive moor, to a field producing excellent crops.

This county lies between 55° 24', and 55° 30' north latitude, and 2° 45' to 3° 33' longitude, west from London. Its extreme length from north to south is about 30 miles, and its greatest breadth from east to west is about 22. According to recent surveys the land cultivated, or occasionally so, is estimated at about 35,000 imperial acres, what has never been cultivated at 206,000; capable of being cultivated 8000, and under-wood nearly 7000.

In taking a superficial view of this county, the impression may be conveyed that it is altogether a pastoral district, as any idea of the extent of the cultivated ground can only be obtained by very minute inspection. The lowest part being 400 feet above the level of the sea, and its highest point 2916 feet.

AMELIORATION OF CLIMATE.

Being one of the elevated districts in Scotland, the climate is naturally moist and unpropitious. Tradition says at one time there was a considerable extent of natural wood; but little remains to bear evidence that such was the case. Even so late as 1800, the artificial wood did not exceed 2000 acres; now there are computed to be upwards of 7000, and the improvement in this respect has been carried on with a view both to ornament and utility. This, in combination with the extensive drainage of the arable land, and likewise sheep pasturage, has ameliorated the climate, and proved highly beneficial both as regards the prevention of disease, and the more early maturity of the cultivated grains, grasses and roots.

THE GREATER EXTENSION OF THE CULTIVATED LANDS, &c., &c.

Formerly cultivation, in its then imperfect state, only extended to what was termed the old croft lands. These lay principally contiguous to water courses, or immediately adjoining residences, and now bear a very insignificant proportion to the arable lands of the county. Accessions were gradually made from uncultivated land, worthy of being cultivated and likewise from what was in a perfect state of unproductiveness, being reclaimed by means of draining, levelling, and afterwards liming. In some cases these were formerly peat mosses, principally under water, or what was covered on barren heath, on gentle declivities.

As cultivation was extended, enclosures were made, and the system of growing white and green crops in regular rotation, with a proportion of pasturage adopted, independent of the manure made upon the farms, extraneous manures are now extensively employed, and the growing of turnip, which, previous to 1800 was hardly practised, is now widely followed over the county, with due regard to their proper management. Within the last 20 years the period of commencing harvest was considered to be a week or two behind the lowland districts of the county. Now it is almost on a par, and the quality of grain produced, more especially barley, may be said to be equal.

The soils are very variable, consisting of moss, clay, sand, and soils having mixtures of these in different proportions. Generally speaking the arable lands are well adapted for the green crop system of husbandry, and as great attention has been paid to enclosures, every facility is afforded for the improvement of the land by pasturage.

It must be admitted, that from the high price of

farm produce during the war, some of the land in this county, as well as many other districts in Scotland, was injudiciously subjected to cultivation. The effects of this are clearly perceptible, and now more rational methods are taken to improve its productiveness. The improved description of farm implements are now common in this district; and it is worthy of remark, that previous to 1800 only 16 thrashing machines were in operation, now there are upwards of 200, and the greater proportion propelled by four and six horse power.

In the recollection of many of the present occupiers, the black faced breed of sheep almost exclusively occupied this county, the cheviot being comparatively rare and confined to one parish (Posso). Now the cheviot breed is computed to bear the proportion of one-half, and, where this change has been judiciously made, much benefit is gained. The calculation may be taken at 100*l.* per annum for every 1000 black faced sheep that have been displaced by cheviots, and this appears still more interesting when, by the last calculation, the number of sheep in the county is estimated at upwards of 102,000.

In the general management of sheep-farms, an improvement has decidedly taken place. Much loss was at one time experienced by over-stocking the pastures, and laying an extra quantity of tar upon the animals, under the impression that it would enable them to bear up better against the severities of winter. Where smearing with tar is still practised, more judgment is displayed, and in many cases stock farmers have adopted other ingredients which are equally efficacious in protecting the animal and does not deteriorate the quality of the wool. More attention is now paid to a proper provision of winter food, to the selection of the rams, and the appropriation of the regular sheep stock to the pastures.

Due attention is now paid to draining those parts of the pastures which are surcharged with water, and thus a more valuable produce from stock is obtained and new sources of wealth opened up.

Prior to improvements taking place on the farm houses and cottages, the Rev. Mr. Findlater, who wrote an able survey of this country, describes the usual construction of the better farm dwellings to have consisted "of a long house of only six feet wall in height; the apartments all upon the ground, the dimensions about 45 by 15 or 16 feet in breadth within walls, no division by partitions within, but the cross partitions effected by close beds, (the close bed is a frame of wood 6 feet high, 6 feet long, and 4 broad) set end to end with a passage between them." The same writer describes that "in one apartment the farmer and his servants sat in the evening, the fire place being in the centre over which there was suspended a frame of lath and plaster, or spars and mats, and reaching within about five feet of the floor. This resembled an inverted funnel which conveyed away the smoke; the inmates sitting round the fire within the circumference of this inverted funnel. The cottages were built with walls of turf, stone buttresses, or wooden posts built into the wall supporting the heavy timbers of the roof."

The general character of farm buildings now, consist of substantial and respectable residences for the occupier, with suitable accommodation in appropriate and comfortable houses to his servants and labourers, and every other necessary convenience required for the farm-stock.

Previous to the construction of the numerous roads which now intersect the county, farm produce

was conveyed to market upon horses, an equal weight being suspended on each side of the animal, and lime was brought home in a similar manner. This method of transport was occasioned and the use of it prolonged by the description of roads to be travelled. Now the county is very well intersected by proper roads and these well kept. The mail-coach travels upon one of them, and the tollamount to near 3000*l.* per annum, independent of what is paid by the post office. Bridges also are now thrown over the river Tweed, which winds itself through the county.

As to what may be the change that has taken place upon the gross rental of the county within the period to which these remarks principally apply, the writer will not hazard an opinion, not being in possession of correct information in that respect. But he may refer to the following statement as corroborative so far of what has been advanced.

Rental of the parish of Peebles in the county of Peebles as taken from the statistical account of that parish, published August 1834.....	7000
Do. as taken from statistical account of said parish published in the year 1794.....	3000
	Increase £4000

Before concluding, the writer may remark that in this attempt to treat, within the compass of an essay, a subject so extensive in its nature as agriculture, and comprehending as it does with its range the well-being of the universe, he may expect to be blamed for the omission of much which may appear indispensable to convey an adequate idea of the unprecedented advance which has taken place within the last 54 years. But his object has been to avoid any reference to the many conflicting opinions of theorists, and to confine himself solely to observation and to practical information derived from those whose skill and experience entitle them to implicit confidence. He has likewise laboured to confine his observations to those connecting links which have mainly contributed to the general result, and to which others are attached in finer gradation. Aware, however, how much remains to be accomplished he respectfully throws himself upon the indulgence of his readers.

A PRACTICAL FARMER.

COMMON SALT FOR CATTLE.

SIR,—“The Farmer's Magazine” being such an excellent medium of communication, I have to thank you that you will allow the following enquiry to pass through it.

Of all medicines Common Salt is perhaps that which is most universally used for cattle; it is cheap, always at hand, and in many diseases excelled by no other medicine. In small doses it is an excellent tonic, in larger quantities, of a pint or so, a powerful purgative; but when given frequently to milch-cows it dries up their milk. Now I have no doubt something may be combined with it to prevent this tendency to dry the milk, without destroying its other properties, and if any person acquainted with the nature of medicine would prescribe a remedy for this defect, and insert it in some of your next numbers, he would be conferring a great boon on farmers in general, and the communication would be thankfully received by

A WELSH FARMER.

May 25th. 1840.

ON THE CULTIVATION OF POOR CLAY LANDS.

It is universally confessed by practical men that no class of soils cultivated by the farmer yield so small a return for the labour expended, and are so difficult and precarious to manage, as the thin clay lands on a very stiff and retentive bottom, which much abound in many parts of the kingdom. Light sands and chalks are very similar in value, but much more pleasure is derived from their cultivation by means of green crops and feeding by sheep, and more profit is obtained from their being used in that way, and in subservience to the other lands on the farm. Agricultural writers, who had no guides but theory and want of experience, have only exposed their ignorance in asserting that all clay lands may be cultivated by means of green crops and leguminous plants; as it is well ascertained that no means known to us will reduce these stiff soils to a state fit to be planted with these crops, and in which they would vegetate and grow. These soils vary in value from 8s. to 16s. an acre, and may be divided into two kinds,—a hard black soil, and often red like brick, on a wet clay bottom, and a soft black soil on a bottom equally wet and retentive. Any attempts to produce green crops on such soils are wholly beyond the question, and beans, pease, and vetches have been recommended as capable of enabling the farmer to dispense with the fallowing of the lands for one year, by which process one crop is lost, with the rent and expense of labour incurred.

But experience has shown that these crops may defer, but cannot take the place of, a summer fallow; spring vetches may be eaten on the ground, and a partial fallow may be afterwards effected, but it will be very imperfect, and the land should be ready for sowing with wheat by the time the vetches are consumed. The quality of the land will very seldom afford a decent crop of the herbaceous green plants, the manuring obtained would be very inconsiderable, and even in the dry season of summer, the feeding of sheep on such soils would be ineligible and detrimental. The wetness of the lands in the spring and autumn, and the late harvests in many places where such soils very much abound, wholly exclude any working of the land before sowing the crops of beans and pease, which require a spring tilth at an earlier period than the nature of the soil will allow; and the greater difficulty remains in applying the manure to the land in a suitable state of tilth and pulverisation. These crops may be sown broad-cast, but then they rank as a corn crop, or they may be drilled and hoed, and then they hold nearly the same position, but on such soils the process of drilling any crops in the spring is very precarious, and in most cases a physical impossibility. The clays on which drilled crops are grown are loamy soils, to admit of that process; but even on good wheat clays, it has been found impossible to substitute these crops for summer fallowing, with equal advantages of crops, and in the state of the land. On the soils mentioned, there need be no hesitation in asserting that no process or means is known by which the land can be prepared for these crops, and the dung applied so as to produce equal effects with a fallowing, either in the state of the land, or in the value of the crops of a continued rotation; no spring working or summer scuffling will reduce and pulverize such soils, which often require the whole summer for that purpose, and to many of

these lands the plants themselves are physically inappropriate as a crop. Even on the best lands they are used as chance crops, in order to defer the fallowing process when the land is in good condition, as the early period of sowing prevents the cultivation that can be effected from becoming a substitute for fallowing, either by green crops or by the summer process. It remains to be seen what difference will be made in the nature and texture of these soils by the modern system of furrow draining: whether it will render them more loose and friable, and more fitted for green plants, or only make them more accessible at different seasons, and easier managed for the usual crop. Some loamy clays may be converted into green crop lands from a previous near alliance, but the stiff clays now mentioned are probably beyond that possibility.

Summer fallowing being indispensable for the working and pulverization of clays, and wheat being found the most profitable crop after fallow, even in the very small quantities that can be obtained, various rotations have been followed and published, including and stating the crops that are most suitable after the fallowing process. The boasted four years course is too short for any soils, and the same plants recur too frequently, although it is very commonly followed on the poor clays now mentioned in the form of—1. Fallow. 2. Wheat. 3. Clover and seeds, cut or pastured. 4. Oats. The grass seeds very frequently "miss," in farmers' language, but the predominant love of corn crops will not allow a prolongation of the term. The oat crop is also very indifferent, because there is no vegetable sward or freshness to yield nourishment to the plants by subsequent decomposition. An improvement has been suggested, by sowing peas, beans, and vetches on the wheat stubble, and thus sowing clovers only once in eight years on the fields alternately. I perceive that I understand the word "rotation" in a different sense from most writers—they apply it to the period when the same plant, cereal, leguminous, or cruciform, is sown on the land under the same preparation, and with manure applied in the same manner, and that the plants may be used in the intervals in a different way, without terminating the rotation; I have been accustomed to understand it as being terminated, when the same plant is sown by the same preparation, and that all the intermediate crops wholly consist of different plants, without any manure being applied. I use it in this sense in the following remarks.

The many rotations that have been published do very few of them apply to the poor clays now mentioned, for they mostly suppose a manuring for beans, and crops to be eaten on the ground by sheep; and some even suppose turnips, which soils belong entirely to another denomination of land. Barley is proposed to be sown after fallows, but on poor hard clays the plant is wholly unfit, and repeated trials have confirmed wheat as the most profitable. The growth of winter and spring vetches requires a loamy softness of composition in the land; they seldom succeed on these hard sterile clays, and when they fail and plant thin, the land is rendered fouler, and no benefit can be obtained from the feeding by sheep, unless the materials of feeding, or the crops themselves, can be obtained, which can only be accomplished by putting the land into good condition by previous fallowing, cleaning, and manuring. Peas are similar in nature to vetches, and the benefits that both crops confer on light dry lands, by

shading, smothering, and manuring, which are certainly not small, have, upon trials, been found incapable of being realized under totally different circumstances in the lands on which they are used. On such soils the crops have been found not worth seed and labour, besides rendering the land much fouler, unless previously in good condition; and beans have been found equally unproductive. Broadcast crops of these plants seldom fail in fostering abundance of weeds, and any partial benefit from hoeing or weeding is a very insufficient check, and produces no effect on the stubborn surface of the soil. The confining of sheep on these bare wet soils to consume clover, vetches, or any crop with a half arable surface, or swarded, would be highly injurious and detrimental; and besides the crop of artificial grasses is mostly so scanty as to yield a very light crop of hay, and sometimes a bare pasturage for one sheep on an acre, and much less a crop to feed a flock for the purpose of manuring the land. In many of the rotations that have been published, two and sometimes three crops of wheat occur in a course of six and eight years—a system of cropping that must suppose very extravagant manuring, and also land of good quality, a ready command of animal manure, either in a putrescent form, or by feeding the crops on the land. Where such means can be commanded, the rotation is unobjectionable, and the requisite skill is best shown in adapting the course of cropping to the support that is available. No doubt can exist that a crop of green herbaceous food, to be consumed on the land at some period between the processes of fallowing, will afford great assistance to the land in producing the future crops; but it must be known that the crops themselves can be obtained, and that other circumstances will allow the full and unqualified benefit. If winter vetches could be produced on these thin soils, the crop could not be wholly consumed before the middle or end of May, and any fallowing effected after that time would be very imperfect, for in general management, a very effectual part of the process is accomplished before that time, and the advantages of early working on stiff clays are well known to every cultivator. On some drier clays, spring vetches eaten on the ground, afford a good preparation for wheat on one furrow: but it is only a catch crop, and delays, but does not dispense with fallowing. In the rotations that have been published in this Magazine, it would be desirable for the writers to state the preparation of the land for beans, the season of sowing, and the mode of applying the manure. It is evident that the lands are much superior in quality to those I have mentioned, both from the crops produced and the repetitions.

Thin clay soils much abound in Durham and Northumberland, in the southern counties, and in many parts of the kingdom. A long practice in cultivating them where the fallows amounted to 150 acres yearly, has induced me to make some remarks on the rotations that might be adopted with most advantage, and on the general culture of that denomination of lands. These soils are generally, but not always, found in situations inland, and distant from extraneous sources of manure; the quantity of turnip land is small or none, and the scanty produce obtained from the lands afford a very limited supply of dung, from the want of green crops and the animal manures that accompany them. Lands badly fed cannot withstand constant cropping, even with the plants

that are found most suitable; the soil must have rest: and since animal manures and putrescent matters cannot be obtained, it remains to produce vegetable matter in the soil itself, which may afford nourishment for future crops, and, at the same time yield a profit during the production. The four year's course soon exhausts these thin soils, manure is only applied once during the rotation, and scantily from want of the materials. In the absence of the knowledge of any crop that would afford to such soils an intermediate support between the fallowings, the whole benefit rests on that process, and wheat has been confirmed by experience as the most profitable and most suitable to be sown on the land prepared in that way. The subsequent crops may be stated as follows:—

Years.	1	Fallow.
	2	Wheat.
	3	Seeds, mown or pastured.
	4	Pasture.
	5	Beans, peas, and tares.
	6	Oats.

or,

Years.	1	Fallow.
	2	Wheat.
	3	Seeds, mown or pastured.
	4	Pasture.
	5	Pasture.
	6	Oats, peas, and tares.

or in a five years course,

Years.	1	Fallow.
	2	Wheat.
	3	Seeds, mown or pastured.
	4	Pasture.
	5	Oats, peas, and tares.

The first rotation may suit the class I have mentioned as being of a softer texture, where leguminous crops have a chance probably of partial success, and the latter course will be more suitable to those of a harder nature, where the chance would be less.

In fallowing these soils of the harder class, the texture should be broken, and the pulverization effected in the early part of the season by mechanical force of the roll and the plough, repeatedly applied; the harrow will not avail much till summer rains have softened the cohesion. On the black and softer kinds, the lands may lay during the early heats and droughts in a rough unbroken state, till they dissolve naturally in the latter part of the season; for if they were reduced by force in the first months, they would be in too fine a state in October for a bed for wheat, and be apt to throw out the plants during winter. With brick-like soils, the case is very different, for they cannot be too much reduced, and there are seldom any weeds in either kinds to disturb the process. Drilling of wheat can seldom be practised: the wetness of the lands, and the very awkward form of the ridges, lying in crooked, unequal, and serpentine breadths, present a great obstacle to any attempt of drilling by machinery; and the precarious season on such lands renders dispatch absolutely necessary in committing the seed to the earth in the best possible form. Ribbing has been practised, but has not been attended with any result, except in a few instances where tall weeds abound to be pulled by hand. The grass seeds should be sown on these hard lands on a pulverized surface produced in the spring by proper harrows, and covered by a single application of the same instruments, and finished by a heavy rolling. It is a very general opinion that grasses will not grow on these lands, and for the best of all reasons, be-

cause they are not sown ; but if the land be properly prepared, a crop of hay and pasturage may be obtained, which will much improve the latter crops. The following list of seeds may be found generally applicable :—

- ½ bushel of perennial ray grass.
- ½ do. of cocksfoot.
- 6 lbs. of dogstail.
- 4 of catstail.
- 4 of meadowfescue.
- 6 of red clover.
- 4 of white clover.

The dogstail will be found a most useful grass on these hard sterile clays, and it ever affords a very grateful herbage ; and pasturage of two and three years will afford a vegetable sward and keep for sheep. The following crops of beans, peas, tares and oats, may be regulated at pleasure, as the nature of the soil and circumstances direct ; but generally speaking, leguminous crops never failed in my observation to render the lands much fouler, as no possibility exists of drilling any spring crops on such lands, except it may be in a particular season of rare and uncertain occurrence, and hoeing and scuffling would be of no avail. Pasture will improve the land, and keep it cleaner ; but if the grasses should partially fail, arable culture may be the sooner adopted. On some drier sorts, spring tares might be eaten on the ground, which would greatly improve the chance of the oatcrop, although that circumstance would depend on the season being wet or dry and if the tares can be produced, which rarely happens on the poorer clays.

In looking at the rotations that have been lately published in this Magazine, I observe that the land is fallowed after the winter vetches are consumed. I have often thought that an imperfect fallowing can be performed on any land after a winter crop, except in some particular turnip soils, and that the state of the soil for the reception of seed is much inferior to the regular process of working after a winter furrow. But as these rotations evidently apply to loamy clays of good quality, no comparison exists ; for the land must possess both these properties, and also a dry and early climate, before winter vetches can be produced and eaten on the ground, and the bean crop be dunged, drilled, or hoed. On clay lands of the best quality, and on which green crops cannot be introduced, it has been found ineligible to postpone the fallowing process beyond six years or eight at the utmost, and the green and grain crops are used in alternation during that period. The old rotation is yet much used on good clays :—1 Fallow, 2 Wheat, 3 Seeds, 4 Oats, 5 Beans, drilled and manured ; 6 Wheat : and also, 1 Fallow, 2 Wheat, 3 Beans, 4 Barley, 5 Tares, 6 Barley, 7 Clover, 8 Beans, and 9 Wheat ; and another, 1 Fallow, 2 Wheat, 3 Beans, drilled and hoed, 4 Barley, 5 Clover manured, 6 Oats, 7 Beans, 8 Wheat. The clover crop is too distant from the fallowing of the land, which presumes the cleanest and most pulverised state of the soil to suit the small and tender seeds of the papilionaceous plants. These and similar rotations, suppose lands of the first quality, and in eligible situations ; the soils I have mentioned are of the most inferior order that are cultivated, and which cannot keep animal stock, to raise manures from want of green crops, and which are unfit for the production and use of the herbaceous plants that are the only known substitutes, except in a very partial degree. It remains to be seen what alteration the modern system of furrow draining (if it ever be performed, as it might have been all done by this time,) may effect in fitting

these soils for green plants, leguminous or cruciform, and if the subtraction of water will render the lands capable of producing them, and for the introduction of sheep to consume them. This essential point is never mentioned in any details we read of the advantages, and the increase of grain produce, derived from draining. J. D.
June 20, 1840.

The disinclination of the farmers to co-operate for any purpose involving their common interest, has long been matter of regret to the most intelligent of that body, and has been frequently commented upon by us. When, therefore, a disposition is manifested to unite in carrying out any legitimate object of mutual interest, it should be encouraged as much as possible.

We observed, some time since, in the *Norwich Mercury*, a notice of a suggestion made at the Midford and Launditch Agricultural Association, by Sir C. Clarke, who takes a great interest in everything connected with agriculture, for the formation of a Benevolent Society for the relief of the "Widows and Orphans of farmers."

We have not had an opportunity of seeing a prospectus or detailed statement of the plan, but we find the following description of it in the *Norwich Mercury* :—

"The leading features of the constitution of the Society are these :—

"The occupation of 200 acres of land, or a rental of 200*l.* per annum, or being the proprietor of 100 acres, with an annual subscription of 1*l.* shall constitute a member. The election to be by ballot (after the 30th of September, 1840), by a majority of at least three-fourths of the members present at a quarterly meeting of the Society, and having been proposed at a previous meeting. That the payment of 10*l.* or an annual subscription of 1*l.* for twenty years, shall constitute the subscriber a member for life. That the nobility, gentry, and clergy, be honorary members, by a donation or an annual subscription. If the subscription remains unpaid one month after notice from the secretary, the defaulter shall forfeit all interest in, and cease to be a member, unless a fine of five shillings, together with the annual subscription, be paid for re-admission, within the space of twenty-one days. The management of the fund to be vested in the life and annual subscribers. The committee to be chosen annually ; to consist of nineteen members, of whom not more than fourteen can have been upon the committee of the former year, and not less than five to form a quorum. No relief to be rendered until two years' subscriptions are paid, in addition to donations received, except in cases of urgent and unforeseen distress, when the committee are to have the power of issuing sums on their own authority, not exceeding 10*l.*, to the widows and orphans of deceased members. The relief to be in the form of donation, and never that of an annuity, even for a limited number of years ; and on the application of not less than seven members the secretary shall be empowered to convene a general meeting of the society within one month from the date of such requisition."

The fact of such a proposition having been favourably received, and having obtained support, is highly gratifying to us as an indication of a dis-

position on the part of the farmers to pursue a course long since adopted by other classes of the community. In considering the matter, however, it naturally occurs to us to inquire, whether the plan proposed is the most beneficial. And here we would wish it to be most especially understood, that in the comparison we are about to make, we do not wish in the slightest degree to prejudice the society to which we are now directing attention. Possessing no other information than that which is contained in the above extract from the *Norwich Mercury*, we are unacquainted with the amount of benefit which the projectors of this society expect to be enabled to confer, by means of the funds which may be subscribed. In order, therefore, to enable those who are directing their attention to the society to make a comparative estimate of the advantages which may be derived from the outlay of one pound annually, as a subscription to this society, or if laid out with another institution expressly dedicated to the interest of the farmers, we beg attention to the following statement:—

As we before stated, we will not speculate upon the probable advantages offered by the first-mentioned society, we will only state, as regards the latter, the "Farmers' Fire and Life Insurance Institution," that the payment of one pound annually for life, by a man 26 years old, will give his widow or children a positive and indefeasible claim for 50*l.* at his decease, supposing that to take place even in the very next year. The payment of the same sum annually, by a man 48 years old, will also entitle his widow or children to 25*l.* at his demise. Should a party be inclined to pay one-half of the premium, and let the other half remain at interest at 5 per cent., to be deducted from his account at his decease, a payment of one pound per annum, with interest at 5 per cent. for another pound, by a man 26 years old, will entitle his widow or family to 100*l.* less the one pound remaining at interest, even should he die the very next year. The adoption of the same plan would give 50*l.* to the representatives of a man aged 48.

Here it should be observed, that neither the amount nor the payment of it depend upon the will of any individual. The representatives of the insured have a positive *right* to the sums named. It is not in the shape of a charitable contribution or donation; it is the result of a contract made by him, and for which his representatives have as clear a legal remedy as for any other purchase he may have made in the way of business.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Allow me, through the medium of your valuable paper, to make a few remarks on a letter which appeared in the *Mark Lane Express* for June 1st on Cottage Allotments, signed "K," whose views in some points accord with mine (as contained in a former letter to you, on the same subject,) but in others I beg to differ with him, as I think he does not duly appreciate the advan-

tages that ought to be derived from a plan so noble in its nature, and elegant in its design; but I may be wrong also, therefore I will state a few facts, simple in themselves, and leave them for your numerous readers to judge, and to give them that due attention which they need.

Your correspondent recommends, "one-fourth of an acre as the quantity of land best adapted to carry out the Allotment System most advantageously," and further on he says "and best calculated to prevent his encroaching upon that portion of time which should be appropriated to the discharge of his duties to his master."—What advantages will be derived from allotting 1200 square yards to a labourer, with the intent to improve his condition? Not any but keeping him a few evenings from his wife and family, or spending an hour with some fellow friend talking over the affairs of the village. Will he have sufficient corn and potatoes to feed a pig? No. Then what advantage will a pig be to him if he has nothing to feed it with? He will have to spend a shilling or two out of his daily wages to endeavour to support it—and is this improving his condition? Then suppose he sows half his allotment with wheat, and the produce is four strikes; and he plants the other half with potatoes, reserving a portion for cabbages, onions, carrots &c., and he has the rent to pay for the land; where is the improvement in the condition of the labourer either physical or intellectual? He then says "about two and a half acres of land to three strong unemployed boys will be found sufficient, provided the man has regular employment." Would a father trust the tillage of his land to his "three strong unemployed boys?" No—I say he would not, or at least he ought not; if he did, he would be liable to suffer from the effects of idleness and deceit which would cause that cultivation which is unfit for Cottage Allotments instead of that which is so desirable, yea, even necessary, viz. the proper use of the spade. Further on he says, "the straw should be carefully preserved for manure, this in addition to what is collected on the roads by the children, will contribute towards the manuring of more than one-third of his land." Then what quantity of straw will the tenant have for manure? and what quantity will twenty or thirty children collect off the roads? and does not more than one-third of the land want manuring each year? I ask where will the tenant get manure sufficient for the management of his land? On distributing prizes I shall speak of that presently.

Having thus proceeded far, a question naturally presents itself, viz., what advantages should accrue from Cottage Allotments, the best manner of cultivating such allotments, and the quantity of land necessary, so as to improve his condition, physical, moral, and intellectual? The advantages ought to be such, and so managed, that shall improve him in the three conditions just named. First, by allotting a sufficient quantity of land to endeavour to improve his physical condition. Secondly, which by having sufficient necessities of life would remove all outward temptations to steal or defraud his neighbours, and thus tend to increase his morality, and eventually improve his moral condition; and thirdly, by improving his physical and moral condition, he will see the necessity of improving his intellectual. Of the manner of cultivating, and the quantity I recommend to be allotted, (see my first letter in your paper for April 27th 1840).

In any one devising a system, it is rational and natural to inquire how far it will affect self. Your correspondent "K" seemed to have a little regard

for self when he says, "and best calculated to prevent his encroaching upon that portion of time which should be appropriated to the discharge of his duties to his master." The Farmer in proposing a plan of Cottage Allotments looks around him and says, "if we let these people have more land than will grow only a few potatoes and cabbages for themselves, where will our labourers come from?" we shall have either to diminish our farms, or assist in working ourselves; the former is painful to ourselves, inasmuch as they think it will diminish their dignity, while the latter will more so, besides being much more painful to the system generally. But let them not rest here, but look forward. What will be the condition of the labourer ten, twenty, or thirty years hence? we have steam applied to almost every kind of machinery; we have railroads, trains of carriages hurled on by the same power—and this wonderful vapour is not only applied to the various powers of manufacturing instruments of different kinds for agriculture, but is even applied to work those instruments itself; hence steam ploughs, and thrashing machines &c.—We also have instruments invented to be moved by the horse; as the hay-making machine &c., and several other instruments, all tending to diminish the less necessity for manual labour. Mechanics—what will then be their employment? It is a great evil in the present day, to judge of any system by the effects it produces, immediately, or soon after it comes into operation; but to improve the condition of the Poor, it must be done generally, and so combined that it shall not only do good in the present day, but that its beneficial effects shall increase from generation to generation. What effects do railroads produce on the post-houses, and what on the labourer? They ruin the former, while, for a certain time they are of benefit to the labourer, in causing an increased demand for labour. What effect does, and will, steam produce on the welfare of the Mechanics? It will ruin them, while they will be obliged to become labourers; labourers will be in excess; our work-houses will want enlarging; more will want erecting; and there will be a general stagnation in the country. Depredations of all kinds will be committed, and nothing but sin and folly will reign among the people. Then it behoves the land-owners and farmers to look at and prevent this impending calamity; and this I can conceive may be most happily achieved, by apportioning a quantity of land to the tenant that shall exalt his station. We, as a body of farmers, must have less land, managing better what we have, and letting to our humble brethren the remainder. Geological researches inform us, a quantity of land in this and foreign countries, remains open for cultivation; in our country we must diminish our pasture land in order to favour the objects of this system, and agriculture in general. To make foreign lands of benefit to our country, we must endeavour to promote emigration, in order to lay open a wider field for cultivation in our native land; while at the same time we are causing the numbers of our population to diminish. But all this cannot be done without the assistance of the labourer or poor; they must endeavour to decrease the number of their families, by checking those passions which is the inevitable cause of such fruit following. These three plans, the allotment system, emigration, and a decrease of the animal passions, will inevitably improve the condition of the poor; but I would not wish it to be understood that the poor should roam, and manage as they choose; no, far from it: I would still have them under the

restriction of a scrutinizing committee, punishing where deviation occurred, and rewarding where emulation is due;—but a question arises, what is to be understood by *rewards*? (This brings me to notice the subject of awarding prizes.) Rewards are of several kinds, but I shall only notice two; one kind of reward is, where a medal, or some other article is given for some good action performed, this may be called a prize; another is where we, by teaching the poor labourer the theory of farming, and instructing him in the various branches of it, and improve his intellect; this may be called, the reward of pleasure arising from a cultivated intellect; the latter reward appears to me to promise more lasting benefit, the former, while it indulges a spirit of emulation and increases a covetous desire, is soon forgot, while the latter imparts a lasting pleasure, I may say indescribable. Then instead of prizes I would say institute a course of lectures to be given in the dark season of the year, deducting one hour from the daily labour of the labourer, deducting at the same time, his wages in proportion: but an objection may be urged against lectures being given to the labouring poor an account of what I have stated in my last letter to you, namely, that after the exhaustion of the physical power by hard labour all the day, that it was too much to exhaust the nervous power as well. In answer I ask in what way have I provided against this, to diminish the labour one hour. And in addition I would recommend that the lectures should be plain and easy, destitute of those arguments which require an active mind to follow them through all its bearings. But it may be said in reply, is not even this exhaustion? is not this cultivating the mind? I say certainly it is; but is there not a difference between educating the intellect of a child, in driving as it were learning into it, and stating facts simple in their nature, to an experienced, and a mind more easily and more capable of receiving instruction, and more especially a subject in which the labourer would take great delight? I leave these facts to a discerning public to judge of their merits, and asking pardon infringing so much on the pages of your valuable Journal, I remain Sir, your obedient servant,

A FRIEND TO THE POOR.

*Sutton on Trent, Nottinghamshire,
June 5th.*

SHEEP BREEDING.

My present letter will be as much made up of shreds and patches from others' productions, that it will be but the fillet wherewith to bind together the flowers of other men's abilities, and therefore will not puzzle your compositor with making endless quotations, but at once thankfully acknowledge the great helps I am receiving from those who have already so liquidly and forcibly set forth what I am humbly at a distance trying to imitate. Premising—I have heard it objected that "Practical" uses too many technical phrases for ordinary readers. I am not aware of having done so; I give English farmers credit for understanding English language.

It has been propounded that, when we have once got a flock or herd of animals to our mind, they require only to be kept together, without any skill exerted in selection to produce an offspring in no respect degenerating from the so satisfactory stock. Against such doctrines I strongly protest. Far from thinking it possible by such an inattentive mode of proceeding to perpetuate, or even to retain, the valuable properties so acquired,

I am of opinion that from this very want of attention the stock has been both greatly jeopardized and misunderstood, as shown in a want of constitutional hardihood externally indicated by co-existent defective formation in the parts which denote the presence or absence of that important though disregarded requisite.

Fashion, like the fabled Sirens, often leads men astray, and to the magic of a name vital considerations have been sacrificed. Just now a cross holding a name of the Leicester, with a spice of the Gloucester or other fancy pattern forms, with the unthinking, the talisman by which every difficulty of land, climate, and circumstance is to be removed, and every inconvenience avoided. And when a breeder has obtained a flock so constituted, he concludes he has done all that is required, and is, *ab initio*, an accomplished flock-master. This is rote, not science.

Sir John Sebright observes, the existence of a perfect animal is an hypothesis; he cannot admit—therefore, in the animals got together from the four winds of the earth, whose present adventitious appearance constitutes their main recommendation, there must have previously existed defects, though latent for the moment, but which will necessarily again obtrude themselves. As the tree needs pruning—as the garden wants weeding—so does the breeding animal require selection!

In an highly improved breed of animals (sheep) there will exist a constant struggle between the desirable and undesirable qualities, the latter of which being constitutional, and the former, in a degree, or for a time, artificial, Nature will, under mismanagement, or if even left to herself, seek to revert back to her former level, to obviate which, “in and in” breeding, under judicious treatment, is our main defence. May I instance what I mean?

Mr. Marshall (an unwilling witness) says Mr. Bakewell's bull, D, is a fine animal, and is a striking proof of the vulgar error that breeding in and in weakens the breed; D was the son of Two-penny, out of a daughter and sister of the same celebrated bull, she being the produce of his own dam; nevertheless D is the sire of Shakspeare by another daughter of the same bull, and is probably the most robust individual of the long-horned breed—while D himself, at the age of twelve or thirteen, is more active and higher mettled than bulls in general are at three or four years old. Here then is an animal from the closest affinity of blood, that at twelve or thirteen years old, surpasses in stamina and vivacity other animals of three or four years old procured from frequent crossings. Therefore, where there exists in animals great constitutional vigour, and the important points of excellence preponderating very considerably in both parents, surely the system of in-breeding may be adopted with impunity, watchful attention being given to the detection and expulsion of any deteriorating symptoms, and like remarks will justly apply to other kinds of stock.

Mr. Bakewell being dissatisfied with the results of a continual infusion of new blood in his pigs, adopted the plan of using but one and the same boar, which boar eventually became the father of all his swine, the consequence was, the breed, so far from being worn out or weakened thereby, has been highly improved in every good quality. Dr. Johnson remarks that there are no weak or deformed people among the Indians, and with his usual sagacity assigns the reason, which is, that the hardship of their lives as hunters and fishers does not allow weak or diseased children to grow up.

Neither should we allow weak or diseased stock to perpetuate their imbecility. Yet such is the lack of knowledge that not a few of us prize our males for those features which are purely feminine, forgetful that while we are admiring a fine head in the male we are but glozing over disease and infirmity in his constitution.

Those disapprovers of close breeding who have but imperfectly matured their ideas on the subject, with a good tempered air of triumph, enquire whether the improved race of sheep can be perpetuated in its excellence otherwise than by the vigilant exercise of a peculiar management; or whether they may now be left to the process which Nature would pursue without soon exhibiting that they are as capable of becoming worse as they originally were of improvement? I look the enquiry in the face and say,—the improved race of sheep does require incessant vigilance and peculiar treatment; and it is precisely for this careful and peculiar mode of breeding I am now contending, as I am quite sure that if left to the process which Nature would pursue (promiscuous intercourse) we should soon slide back to the kind of flocks our Roman conquerors left us, more like goats than sheep. What I advocate in theory and admire in practice, is the scientific observance of and waiting upon Nature, to train her willingness to melioration, and to prune out her aberrancy.

Mr. Bakewell, to whom all England is indebted for his numerous invaluable discoveries in agriculture, and for *creating a new breed of cattle*, is an honourable instance of what I mean. He waited, not for chance to throw in his way animals fitted for his purpose, he made excursions to various parts of the kingdom, inspected the different breeds of cattle and sheep, ascertaining those which were best of their kinds and most valuable for his purpose. These he purchased wherever they could be found, and this selection was the original stock from which he propagated his own. In the animals thus selected it is to be presumed that much excellence must have existed, yet to improve upon that best stock, and amalgamate it into one blood was a merit at that time peculiar to himself; and as he approximated to the desired point, his animals (sheep especially) evincing so much superiority in wool, symmetry, and constitutional excellence, that he certainly could not, with propriety, use any stock but his own; for having attained this elevated position of excellence, he thereby became and continued an in-and-in breeder, for evidently any other course would have been wilfully and ridiculously to court retrogradation; and having so bred for a great number of years he thereby obtained a new and superior race of sheep, from which he so carefully weeded defects that at last he could give such a character and warranty to his flock as no contemporary could venture to do.

And those few flock masters who have judiciously possessed themselves of his pure breed, and kept it uncorrupted from meaner blood, have now the finest and healthiest sheep in England, with an uninterrupted pedigree and qualification for nearly half a century.

Thus I have arrived at the end, not of the subject, but of my fourth long letter. I will now pause for correction from some of your more experienced and talented correspondents, and then, by permission, will trouble you with the description of what I consider a good sheep, and suggest how to procure, sustain, and perpetuate so desirable a breed.

I am, your's, &c.,

PRACTICAL.

ON THE COMPARATIVE MERITS
OF PLOUGHS.*Pembrokeshire, June 3.*

SIR,—Having read in your magazine an account of Messrs. Handley and Pusey's experiments on the comparative draught of ploughs, and seeing they plainly prove that the same work can be done as easily, and well, by two horses in one kind of plough, as by three in another—a fact so important to farmers, that I have been induced to make a few trials myself, in order to ascertain the draught of the ploughs commonly used in this county, compared with those spoken of by Mr. Pusey, and if you think the results of them worthy of your magazine, they are before you. The ploughs used here by the larger farmers are of two kinds, one having the improved Scotch mould-board, which gives it a narrow breast, and curves out quietly behind; the other is something fuller in the breast, and the mould-board has less of the hollow curve. The small farmers almost universally employ a very light, but clumsily-built instrument, called the old Welsh plough; almost the only iron about it is the coulter, a very narrow share, and a band forming its extremely long solepiece.

Before I commenced the trials, I procured one of Mr. Cottam's gauges, which has a piston that works in a cylinder, filled with oil, attached to the index, which imposes so powerful a check on the rapidity of its vibrations, that the eye is enabled to mark its movements with very tolerable accuracy, which, with any I have seen before, was out of the question; and also, one of Hart's ploughs, as a sort of standard, its draught having been proved before by Mr. Pusey. Besides this, the ploughs were two light iron ones, with the narrow breast, and expanding mould-boards, weighing about 12 st. each. A wooden one, somewhat fuller in the breast, and less of the expanding curve behind to the mould-board, weight 10 st.; and also an old Welsh plough, weighing 6½ st. The ground chosen was an outen stable, light, but hard, from the dry weather, the furrow 5 in. by 9 in.; the draught of Hart's was 13 st., of the wooden one 17 st., of the iron ones 19 st. and 20 st., and of the old Welsh 20 st. I then had Hart's wheel fitted to the wooden plough, which, on the same ground, it reduced to 14 st. From this trial it was evident, that all our ploughs are of heavy draught compared with Hart's; but I think it owes this lightness rather to its open mould-board, which so greatly reduces the surface exposed to friction, than to its full breast, which must push off the furrow slice at once, just at the point where it is severed by the coulter and share, and where, of course, its resistance must be greatest, and leaves very little for the hind part of the mould-board to do, and this little, for want of a curve outwards, it does very imperfectly, as it leaves the furrow standing too much on its edge, whereby the surface grass and weeds are not destroyed; and this was still more evident in the work of the old Welsh plough, which has a still straiter mould-board; while the Scotch mould-board, by means of its expanding curve behind, threw it quite on its back; that the full breast adds to its working draught in Hart's, is also apparent, from the distinction Mr. Pusey has made between that and its surface draught; and still more so in the old Welsh plough, where the surface draught was 4 st., and the working 20 st. Of the advantage of a wheel I think there can be no question, for, besides keeping the plough constantly to the same

depth, it seems always materially to lighten its draught; and I think the reason is plain, for, when at work, much of the surface draught must be transferred to the wheel, from its resisting the tendency the share has to draw the plough downwards.

There is another point I should very much like to see fairly determined, which is,—at which distance from the plough is the best place for the horses? From several trials I have made, I am inclined to think there is no difference in the draught of the plough, but there may be much in the power of the horses. I cannot agree with Mr. Pusey about the value of an uplifting force, for I imagine the share acts merely as a wedge, and that any producible uplifting power would go a very little way towards overcoming the resistance of the soil upon which it acts, and that little must be counteracted by the ploughman, or the share would come to the surface, and it cannot be advantageous to bring two antagonizing forces into operation together. I intend to try if I cannot improve the work of Hart's plough by changing its mould-board for one of the same dimensions, but with the hollow curve, which will give it a narrow breast, and, I think, throw the furrow slice more on its back; and as the weight of a plough seems so greatly to effect its draught, I have sent to Mr. Ransome for the irons of his F. F. plough, to which I propose to adjust a wooden beam and handles, and also one of Hart's wheels, whose plough I then expect it will equal in lightness, and beat in the quality of its work. If it prove so, and you think my communications worth insertion, you shall hear from me again.—Your obedient servant,
L. M.

It has been a matter of dispute for some time whether the preference should be bestowed on oxen or horses as beasts of draught; and both sides have contested the point with too much prejudice, and sometimes with too much animosity; this is one reason why the question has never yet been decided, and why no positive results have yet been arrived at on the subject.

The preference must certainly be given to horses on the following considerations:

They are capable of all kinds of agricultural labour, they adapt themselves to every road, and to every degree of temperature. Where horses are kept there is no occasion to select the particular kind of labour to which they may be applied, they may be employed in any work which presents itself, and attached to all implements. They perform all kinds of work very expeditiously, and are capable of sustaining their speed for a considerable length of time; consequently the conductors are kept fuller employed while working with horses, than when working with oxen. Although less steady at heavy draught than oxen, the rapidity of their motion and their spirit enables them to overcome all obstacles of short duration, which would frequently stop a team of oxen.

Oxen, on the contrary, have the following advantages in their favour:—

They can execute most of the agricultural operations, ploughing, draught, &c., equally as well as the horse, and when well fed, are capable of enduring almost as much fatigue. Many persons consider that they are more useful in ploughing in corn than horses.

Their keep is much less expensive. The original price of an ox is generally far below that of a horse;

their harness also is much less costly; their food is much cheaper.

Oxen so far from diminishing in value when they are well fed and not overworked, frequently become more valuable, and on being sold often fetch more than their original price, thus almost paying the interest on their capital; whereas horses decline in value as they grow older, until they are worth little more than their skins, and the capital expended on them is thus completely absorbed. Oxen are also less liable to accidents and disease.

They require less cleaning and attention; a cowherd can take care of thirty oxen, when other men work with them alternately.

Lastly, they produce a greater quantity of dung, and the manure derived from them is generally more useful than that which is obtained from horses.

We shall be able clearly to demonstrate that which must already be apparent, that even that portion of agricultural labour which can be properly executed by means of oxen, will not be executed so cheaply by them as by horses. If all the operations on a farm were of such a nature as to be easily performed by oxen, these animals only ought to be made use of. Although the operation of harrowing is far better executed by means of horses than by oxen, yet this does not, in my opinion, form a sufficient consideration to induce the adoption of the former. But in most farms there are many operations which oxen are still less calculated for, or at least which they perform exceedingly slowly. This would be a sufficient motive for keeping a certain number of horses, regulated of course by the amount and extent of these operations.—*Von Thair.*

ANIMAL OIL FROM WOOL USED AS A MANURE.

TO THE EDITORS OF THE LEEDS MERCURY.

Gentlemen,—Observing in your paper of last week an extract taken from the *Mechanics' Magazine*, relative to a series of experiments made in France, to ascertain the value of oil arising from the washing of sheep's wool, I beg to observe that in this county, as well as in Cornwall, the wool is not washed previous to clipping, as in the upper counties, consequently a very much larger proportion of animal oil, or what is termed *yolk* in this neighbourhood, passes off in the manufacturers' wash pans, intermixed with soap suds, and where business is carried on to a great extent, an immense quantity can be obtained, varying I should say from 10 to 20 and upwards to 100 hogsheds per week. The benefit arising from this article as a manure, properly applied, is incalculable; the writer of this has been making the experiment within the last eight or ten months, by applying it on a large quantity of earth collected from different parts of the estate, and after properly mixing and turning it over once or twice, it is thrown up in ridged heaps to carry off the rain water; this spring we have carted out sufficient to cover over from ten to fifteen acres of ground, laid down to grass, and I feel confident that it is equal, if not superior to any farm yard compost that can be obtained in the usual way.

I state these observations in consequence of seeing the subject broached in your valuable paper; and if it leads the manufacturers in the north of England, who may be agriculturists as well, to try the experiment, it may, I consider, act as a stimulant to those who are more largely interested; and it may be also the means of inducing the manufacturers to offer for sale, for the benefit of the community at large, what hitherto has been deemed as useless by them.

Gentlemen, your most obedient servant,
Ashburton, Devon, 11th May 1840. S. T., Jun.

A COMMENT ON FORMER COMMUNICATIONS.

TO THE SECRETARY OF "THE LABOURER'S FRIEND SOCIETY."

SIR,—The last number of your Magazine affords evidence of the vast utility of the allotment system, both affirmatively and negatively. From it I shall, in a running commentary, endeavour to shew how much is yet to be done, and how perfectly secure the course of further improvement is to the labouring classes. The materials alluded to in the April number shall be those only to which I shall at present invite attention, with such observations as appear to me arising naturally out of them. Commencing with Mr. Acland's report respecting Sussex, and taking for granted what he states, it appears that the population is 300,000, and the number of acres 903,000, or three acres to a man. The estimated number of agricultural labourers, 20,000. The condition of the labourers such as to give an average of twelve shillings a week for the married men with families, and nine or ten shillings for the unmarried, which he seems to think an unfair distinction. "It is the custom," he says, "in Sussex, to make a broad distinction between the married and the single husbandmen; to pay the former higher wages than the latter; to get husbandry work done at a price relatively not to the value of the labour, but to the exigency of the labourer. And this practice may be said to prevail, more or less, throughout the agricultural districts of the kingdom. A labourer is paid wages in proportion to his imprudence, rather than with reference to his industry and skill."

"The effect," he says, "of the practice complained of must be either to drive the bachelor husbandmen from their native land, in sheer disgust at the gross injustice with which they have been treated, or to prompt them to early and imprudent marriage, in relief of that heavy discount upon their industry to which as bachelors, they have been most unwisely subjected. In the one case the farmers lose their best men; in the other, they make a premature provision for a pauper population."

The tolerably confident and arbitrary decisions of Mr. Acland are based on the gratuitous assumption that a married man cannot or does not labour so well as a bachelor, and yet the common practice is to reward or pay him more. Mankind are generally swayed by their interests, and when the great body approve of and practice a mode of securing their interest, it may be fairly assumed that they have as good a chance to be right as he who so roundly condemns them. But the common sense, as well as the common experience of mankind, may be appealed to in this way—that a married man having a greater interest at stake, having provision to make for more mouths than one, cannot on this account be supposed to labour less than he who has only to provide for one. The married, then, may reasonably be supposed to do rather more than less on that very account. He cannot so easily shift his quarters as the bachelor, and on that account, not an unimportant one, be surer at all times to be had for the service of his employer; whereas a more ambulatory labourer is not likely to be so generally useful, on that very account, that he can quit his location at any time, and without previous notice or warning. Again, the family of the married man becomes useful to him in the way that he is so to his employer, and helps, too, in youth and to manhood, as a labourer more likely to be had at all times, than a more isolated bachelor. And, again, unless the labourers married and had families, where and how is the succession to be kept up, and the ranks of the 20,000 to be supplied as they die off?

In short, it may be well questioned whether Mr. Acland's notions have any solid foundation in either fact or theory. My course hitherto has been confined to the single position of the parties in respect of interested motives, and the mere supply of animal wants; and here I would observe, that great addition may be made to the comforts of the labourer, in which the married man will

be no incumbrance to the farmer, but the reverse; I mean by the allotment system of, say, a quarter of an acre to each, *at the farmer's rent*.

Before, however, going into this matter, let me go on a step further from Mr. Acland's evidence. He says the greater portion of the married labourers of Sussex have garden-grounds attached to their cottages, an average of nine rods, or the eighteenth part of an acre, at the moderate rent of twenty-three pounds per acre! or about twenty times the farmer's rent! This is to aid him and his family. And yet at this exorbitant rent, tenants are found.

Many have no gardens to their cottages, and these pay for a quarter of an acre fifteen shillings, or *three times only* the rent of the farmer; and over the leaf we find that for potatoe ground they pay *four times* the rent, and clear the land for the farmer by the same operation.

My readers, I hope will go with me in this commentary, and bear in mind the appalling facts disclosed. All these I shall class as negative evidence of the benefits of the allotment system. For the positive, we have only to turn a very few pages back to the infinitely more pleasing, humane, and gratifying address of the Rev. W. B. Whitehead, Vicar of Chard, who says that "If the allotment amounted to a quarter of an acre and was well cultivated, the direct increase of income which it afforded him, the labourer, could not be calculated at less than two shillings and sixpence, independent of the great advantages of health which a constant variety of wholesome and nutritious food at all seasons of the year afford."

Turn we again to Mr. Acland, in the account given of the week's wages of twelve shillings, which leaves not a farthing for clothes, and gives less, by 2½d. per head, to the labourer's family than is provided for the pauper in the workhouse. Taking all this for granted, then the allotment system, as stated by Mr. Whitehead, would supply two shillings and sixpence a week more, thereby making up, in all probability, for the otherwise destitute and deplorable state of their family. This is positive evidence, and demonstrates as clearly on the one hand, as the negative on the other, the extreme value and utility of the system; for be it again and again repeated, *no one loses, and every labourer gains by it*.

Having opened the business thus far, let us now see what sacrifices, as it is supposed, are needed to put the 20,000 labourers in possession of a quarter of an acre each. Five thousand acres would suffice, and this deducted from 903,000, leaves still 898,000 for all other classes. Why, if it were deducted as an actual loss, and that taken solely from the uncultivated or waste acres, it would scarcely be felt by the aggregate proprietors. But if, as is manifested, not in many cases, but in every instance without a single exception, that the benefits are reciprocal, in that the rents are as well paid as the farmers, then does not all doubt vanish as a vapour or a cloud, that passes away almost as soon as seen? On this part of the subject, independently of all experience which is as above, it may be firmly stated that the proper security for all rents, of great or small farms, is in produce. The produce of the allotment tenant is generally double of that upon large farms, sometimes treble, and in some instances quadruple. Is there not then double, treble, and quadruple security, in the more abundant produce for the rent, *if that rent be as it ought to be*, the same in proportion as the larger farmers? Here, again, who loses? No one. Who gains? The labourer; and by his own exertions too, without other aid of any one.

Turn we now to another part of the same magazine, page 59, as to the mode of making manure for the allotment tenant. This he can do even without a pig, and effectually too, and on a principle that never fails. The more produce the more manure, or means for making it. Again, the more manure, the more produce, generally speaking; thus giving a double reward and encouragement to the industry of man. A very little, indeed, is needed to better the condition of every labourer in the kingdom. That little is no more than what every one is entitled to, for it is in that way only,—*there is no other*,—that the Divine command can be obeyed, which

being the first with promise, is of universal and never-ceasing obligation. "Be fruitful and multiply, and replenish the earth and subdue it."

Without at all examining into the relative population of Sussex and its cultivated or productive lands, I shall now advert solely to the 110,000 acres that are called waste. To bring this waste into the same state as the rest would need a greater proportion of labourers than for the acres already in cultivation. But even at this rate the 110,000 acres, at 40 acres for each labourer to cultivate for others, would give employment to upwards of 2,700 labourers, in addition to the 20,000 now engaged in agriculture. If so, and there seems to be no doubt of it, then the labourers may marry and have families, for a considerable time to come, with great advantage to the community, even on the statement given in Mr. Acland's summary. The waste acres must inevitably remain waste until there are more human beings to cultivate them; so that the premium, as Mr. Acland terms it, on marriage, is not so ill founded as he would make it appear. But my readers will, probably, be greatly surprised to be informed that on evidence given before the Emigration Committee, seven years ago, thirty-six individuals in Ireland extracted a subsistence from six acres of land, or six to an acre. In Sussex the population is three acres to a man, a difference of eighteen to one. Take only one-half of this increase, and we come to a capability in Sussex to maintain an increase to the population of 2,400,000 souls.

This seems astounding, yet it is not unfounded; but what becomes of Mr. Acland's theories and facts in the teeth of such evidence? Recollect this is so far hypothetical only as it is untried, and must remain untried for ages to come probably, but is no more problematical than the plainest demonstration of past experience in what has been, and therefore what may be done again when necessity requires it.

J. I. B.

FOREST TREES OF GUIANA.—The fitness of the timbers for naval architecture is unparalleled, and in some instances is said to surpass the teak. The greenheart, the mora, and souari or sewarri, of all other woods, are most unquestionably the best adapted for ship-building. Within the last ten or twelve years a considerable quantity of brown greenheart has been sent to Liverpool and Greenock; and I have been told that builders and others interested in shipping are now of opinion, after about ten years trial of the wood, that in strength and durability it is superior to any oak, and it actually commands a higher price. Had these woods been introduced, and extensively employed in the royal dock-yards fifteen or twenty years ago, it is the opinion of competent judges that we should not now hear much of dry-rot and Kyan's patent; and not to mention the rapid decay of vessels built of English and African oak, and the consequent frequent repairs, with what saving to Government would it not have been connected! If, therefore, the attention of the navy-board could be drawn to the important fact that British Guiana can furnish the finest and most durable wood in the world, in sufficient quantities to supply all the ship-building establishments in Great Britain, a double benefit would arise from it, namely, the saving to government and the increased demand for the natural production of the colony. The first experiment might be made to establish a dock-yard for the repair of such of her Majesty's cruisers on the West India station as draw not more than eighteen or nineteen feet water. The outlay of such an establishment would be trifling, if the importance of ultimate success be considered. The woods, which are qualified for ornamental purposes, vie in elegance, if polished, with any in the world. The want of labourers is the great cause that these treasures lie comparatively hidden, and have scarcely excited attention. The demand in the colony has been so great for native woods, that these who are at present employed in that trade are not able to meet it.—*Schomburg's Description of British Guiana.*

MACHINERY EXPORTED.

RETURN to an Order of the Honourable the House of Commons, dated 24th March, 1840;—for an ACCOUNT showing the several Countries to which Machinery has been exported, with the Official Value thereof, in each Year, from the 1st day of January, 1830, to the 1st day of January, 1840, inclusive.

COUNTRIES TO WHICH EXPORTED.	YEARS ENDING 5TH JANUARY.									
	1831.	1832.	1833.	1834.	1835.	1836.	1837.	1838.	1839.	1840.
EUROPE:	£	£	£	£	£	£	£	£	£	£
Russia.....	1,428	2,141	1,451	3,201	8,512	2,198	8,838	16,464	18,714	30,911
Sweden.....	22	1,203	49	103	794	3,753	1,951	286	2,868	1,563
Norway.....	..	168	203	200	5	150	141	273	929	31
Denmark.....	5,020	115	2,670	2,987	2,698	9,831	140	2,478	3,266	1,376
Prussia.....	390	226	96	2,159	605	962	1,990	6,576	19,096	11,126
Germany.....	4,712	5,308	6,316	10,287	14,520	26,132	15,644	35,354	59,669	70,235
Holland.....	4,037	6,081	5,358	7,718	12,737	14,191	18,209	42,857	48,847	48,278
Belgium.....	..	..	..	1,632	7,609	8,475	14,848	38,548	64,946	40,722
France.....	36,651	10,306	17,829	18,476	36,802	46,471	75,328	61,703	124,361	182,329
Portugal, Azores & Madeira.....	154	38	93	261	1,253	5,437	1,233	753	633	1,331
Spain and the Canaries..	6,525	2,230	5,600	7,204	2,783	6,197	5,612	5,329	4,055	4,953
Gibraltar.....	102	341	12	56	269	1,689	541	671	250	3,225
Italy.....	12,243	1,277	4,430	4,343	15,939	26,362	22,489	69,533	41,985	29,097
Malta.....	130	..	..	..	41	209	783	87	188	35
Ionian Islands.....	80	45	750	6	137	478	2,744	568	67	25
Morea and Greek Islands	..	..	..	..	10	837	8	..	..	49
Turkey and the Levant	161	2,352	2,995	9,818	1,370	403	4,228	16,741	18,897	10,686
Syria and Palestine....	..	..	..	..	..	..	15	..	..	2,305
Isles of Guernsey, Jersey, Alderney and Man ..	503	731	385	2,535	365	1,561	1,237	2,224	1,078	968
ASIA:										
The E. Indies and China	10,938	8,927	13,462	20,192	38,745	15,215	14,724	12,383	52,076	83,721
Australian Settlements..	1,630	4,223	1,101	5,072	3,637	7,210	5,249	8,923	5,101	14,862
AFRICA:										
Egypt.....	1,075	5,510	146	995	625	2,221	4,502	11,408	8,132	18,856
Mauritius.....	8,072	4,505	1,420	1,637	1,860	6,391	6,531	22,066	23,560	13,788
Other Parts of Africa ..	9,891	395	1,416	796	551	2,712	1,057	4,652	1,882	4,375
AMERICA:										
British Northern Colonies	3,839	4,390	1,002	1,833	1,716	4,181	3,751	11,467	4,936	9,868
British West Indies....	50,744	15,003	9,661	10,214	18,738	31,785	40,177	57,892	42,858	35,353
Foreign West Indies....	18,449	8,411	1,014	1,524	1,767	9,098	12,865	33,019	21,812	18,777
United States.....	10,913	8,637	6,883	8,828	28,099	45,706	24,081	13,862	30,303	7,184
Brazil.....	14,255	12,055	4,884	2,671	6,822	15,208	6,911	11,484	13,857	15,701
Mexico.....	2,996	593	206	1,616	1,018	3,832	3,825	2,930	8,533	2,409
Guatemala.....	..	..	..	..	..	..	..	..	..	3
Colombia.....	534	30	197	50	167	1,101	327	198	2,148	2,926
Peru.....	15	153	820	330	440	808	1,995	1,440	2,150	2,764
Chili.....	120	8	2,266	322	644	1,215	69	859	223	3,552
States of the Rio de la Plata.....	38	222	..	18	72	4,022	40	390	10	9,901
Total.....£	208,767	105,491	92,715	127,064	211,982	307,951	302,092	493,468	627,430	683,285

Inspector-General's Office, Custom House, London, }
13th April, 1840.

WILLIAM IRVING,
Inspector-General of Imports and Exports.

CENSUS OF AGRICULTURE IN THE UNITED STATES.

We are happy to perceive that this important subject has been taken up in the proper quarter, and that we are at least to have such an enumeration of the agricultural products of this country, as will furnish some safe estimate of the quantity produced, and the districts in which they are grown. In reply to some suggestions made by us on this subject, Mr. Deberry, the chairman of the committee of agriculture, has kindly forwarded us a copy of the instructions for the use and direction of the marshals and their assistants, from which we find that the following series of inquiries are to be propounded to every farmer. Although there are some products it would be perhaps desirable to have introduced into this list in order to render it complete, yet it contains all the most essential items, and if carried out in the spirit in which it seems to have been conceived, it will be a collection of vast importance and value to the country. Had such a census of our agriculture

been taken at every ten years, the comparison of the tables at different times would be of the greatest interest, as determining the increase in the product of our fields, and the districts in which the greatest fluctuations have taken place.

We have one suggestion to make in regard to this matter, which we consider of very great importance. It is this. Let every printer of a newspaper in the country, and in all the cities that print journals for distribution in the country, give a place to the questions which we copy below, and which will be propounded to every farmer in the United States. As it is to be hoped that there are few or no farmers who do not receive some journal, agricultural or otherwise, such a course would be the means of bringing the subject to their notice, and enable them to prepare their answers with greater correctness than they might otherwise be able to do. If every farmer who receives a copy of these interrogatories, would at his leisure sit down, and write against each one the proper reply, not only would the labours of the marshals be greatly expedited, but, which is of more consequence, a greater degree of accuracy would

be secured. The marshals will commence in June next, and proceed through their districts as soon as consistent with accuracy. The interrogatories refer to the crops of 1839, and to the products of that year must the answers relate.

AGRICULTURE—INTERROGATIONS.

What is the number of your horses and mules?
 How many neat cattle have you?
 How many sheep?
 How many swine?
 What is the estimated value of your poultry of all kinds?
 How many bushels of wheat did you grow in 1839?
 How many bushels of barley?
 How many bushels of oats?
 How many bushels of rye?
 How many bushels of buckwheat?
 How many bushels of Indian corn?
 How many pounds of wool?
 How many pounds of hops?
 How many pounds of wax?
 How many bushels of potatoes?
 How many tons of hay?
 How many tons of hemp and flax?
 How many pounds of tobacco?
 How many pounds of rice?
 How many pounds of cotton have you gathered?
 How many pounds of silk cocoons?
 How many pounds of sugar?
 How many cords of wood have you sold?
 What is the value of the products of your dairy?
 What is the value of the products of your orchard?
 How many gallons of wine have you made?
 What is the value of your home-made or family goods?

As intimately connected with these, may be added those relating to horticulture—which are as follows:

What was the value of the produce of your market garden in 1830?

What is the value of the produce of your nursery and green house?

It is hoped that editors friendly to the cause of agriculture, or who have readers in the agricultural districts, will give a place to the above interrogations, and invite the attention of those interested, that they may be in readiness with their replies. Let the first effort for an agricultural census of the United States, be met in a manner that shall ensure the desirable accuracy of the measure.—*Albany Cultivator*.

ON DRAINING.

TO THE EDITOR OF THE NEWRY TELEGRAPH.

SIR,—I perceive in your Paper of Saturday last a letter from Mr. D. Gardner, of Kirklandholm, in which he says he would, in one or two instances, willingly refer to some particulars contained in a letter from Mr. Kinmonth, which appeared in your columns some time since the month of February last.

Both the writers are unknown to me, except by name, and I beg to state that I have only seen Mr. Gardner's last letter, and that one of Mr. Kinmonth's, to some statements in which Mr. Gardner says, in his last, he would willingly refer. If Mr. Gardner is not able to write more correctly on agricultural subjects than he is to quote from Hudibras, "*God help poor Gardner and his readers too*," Mr. G. says,—

"CONVINCE a man AGAINST his will,
 He's of the same opinion still."

This is pure, unmixed nonsense. No created power could convince a man against his will—not even the greatest tile-maker the world ever produced. Dr. Butler, the author of Hudibras, possessed too much knowledge of human nature ever to think of work-

ing such a miracle as convincing a man against his will. What he has written is perfectly possible, and at the same time good sense:—

"He that COMPLAINS AGAINST his will,
 Is of HIS OWN opinion still."

But, as Mr. Gardner says, "in whatever part of the world he has been (*'he has seen, and sure he ought to know'*) he has invariably found that 'ignorance was the parent of prejudice;'" so I, who have lived at home all my life, have always found that ignorance and error are twin-brothers. But now for the draining.

If I have understood Mr. Kinmonth aright, his plan is this:—At the bottoms, or on the sides of sloping ground, or hills, or on any other ground, rising with a certain or gradual ascent, he would run a cut from the bottom, or lowest part, right up through the middle of the wettest part, to the source of the spring, or softest portion, at the upper end of the field. This drain, or conductor, I shall liken to the trunk of a tall aspen tree, the root or butt end of which, suppose to represent the drain, at the bottom, or lowest part of the ground, about to be reclaimed; and the top part thereof, the upper or higher end of the same trunk. Now it will, I think, appear obvious to the simplest agriculturist, even of the "*houseless wilds of Connemara*," that, when springs, or soft boggy ground lie on either side of this conductor, a little collateral sewer, like a side branch of the aspen tree, running off somewhat like a leg of the letter Y, judiciously directed, at an upward angle of less than 90 degrees from the trunk, into the upper side of the wet and "seepy," will produce on that portion the desired amendment. And going along this conductor, on either side, in any part where wet oozes out, make a judicious side cut, till all the wettish ground be thoroughly dried. This is Mr. K.'s system, which Mr. G. tries to mystify, and pretends not exactly to understand. Mr. K. does not mean that his transverse, or as I have called them, collateral cuts might fail in laying the land dry to the extent they run on either side; but he means that in case of the field about to be drained being so great in extent, that these side drains could not, in many places, be extended sufficiently far to catch all the water, you must choose your ground for another trunk, another parallel conducting cut, and to it, in the proper parts, attach or run the branch drains. Mr. Gardner again endeavours to obscure the plain sense of Mr. Kinmonth's observation about using clay for a manure. How clay taken from a transverse could be better than from a parallel drain, is more, Mr. Gardner says, than he can tell, and Mr. Kinmonth has not disclosed the secret. This remark has no wit in it. In writing the opinion "that clay (no matter whence procured) is to a light soil what it requires, and acts as a manure," Mr. K. had his mind fixed upon the much larger proportion of it that would be left out of drains, three-fourths of which were filled with stone, than there should be remaining after closing drains, of which only about one-fourth should be filled by tiles placed at the very bottom.

And now permit me briefly to offer my opinion on the comparative merits of stone and tile for forming these little aqueducts. Wherever there happen to be rugged stony "*knoces*" and waste scraggy patches abounding with loose or easily quarried stone, every preference should be given to it.

"Those rugged patches which deform the field
 Reward your labour. Raise the stone they yield,
 And form your drains; thus toil, with double aim,
 Dry knolls and swamps together to reclaim."

In many places the soil is so filled with loose stones, a little under the surface, that turning it up, and collecting them out from the earth, would leave the ground of much more value, so much so as, in many instances, to remunerate you well for the labour, even if the stones were not required for sewers. Mr. Gardner waxes most indignant at Mr. Kinnmonth's jest about tile-kilns springing up in Scotland like mushrooms. What is it to us how many manufactories of this kind there may be in Ayrshire? Would Mr. Gardner be so good as to inform us how many might be sufficient for the county of Meath; and how he would burn tiles there? In large districts the principal fuel, of even substantial landholders, is stubble, raked from the wheat or oat field, and the withered stalks of potatoes, collected with the nicest care. I suppose, if, like the Israelites in their Egyptian bondage, the *Meatheans* were to "gather the stubble throughout all the land," it would not burn one million of tiles, exactly the one hundredth

part of what Mr. G. calculates would be sufficient for the 400,000 acres that are practicable and worth draining in Ayrshire, at 3000 tiles to the acre.

If Pharaoh, when building the pyramids of Egypt, had possessed such an overseer as Mr. Gardner, he would have been of more service to him than ten Josephs. But to conclude for the present; in serious earnest, I do not see the least use in Mr. G. showing to us *Puddies* how very much he knows about Ayrshire, its extent, draining, &c., &c., and what it may be made in 35, nay in 20 years. Let Mr. G. enquire of Mr. M'Grath, of Claret Rock, near Jonesborough, how he reclaimed a large tract of half hilly, half mountainous, cold, springy, stony land; and what good he supposes 150,000 tiles buried in the trenches he cut would have done for him? But I trespass too long. Pray pardon your very obedient servant,

S. B.

Hill-street, Newry, April 27.

AN ACCOUNT OF BRITISH WOOLLEN MANUFACTURES

EXPORTED FROM THE UNITED KINGDOM IN THE YEAR 1839;

SPECIFYING THE COUNTRIES TO WHICH THEY WERE SENT.

COUNTRIES TO WHICH EXPORTED.	Cloths of all Sorts.	Napped Coatings, Duffels, &c.	Kerseymeres.	Baizes of all Sorts.	Stuffs, Woollen or Worsted	Flannel.	Blankets and Blanketing.	Carpets and Carpetings.	Wool-lens mixed with Cotton.	Hosiery, viz., Stockings, Woollen or Worsted.	Sundries:—Consisting of Hosiery not otherwise described, Rugz, Cover-lids, Tapes, & Smallware	Declared value of British Woollen Manufactures, Exported from the United Kingdom.
	Pieces.	Pieces	Pieces	Pieces	Pieces.	Yards.	Yards.	Yards.	Yards.	Dz. Pcs.	£	£
Russia.....	1,804	32	408	..	45,929	9,261	420	41,029	30,450	228	650	125,524
Sweden.....	154	8	109	3	8,009	698	1,782	2,240	15,960	37	16	16,206
Norway.....	356	97	86	32	2,867	3,281	1,290	373	2,291	262	289	10,843
Denmark.....	85	41	25	..	502	300	132	492	360	53	1	2,072
Prussia.....	38	2	2	..	36	416	250	..	670	..	180	646
Germany.....	18,181	10,010	3,445	354	382,377	324,253	12,130	66,711	334,762	1,073	14,520	816,604
Holland.....	1,806	7,784	659	13,402	121,791	132,292	744	38,148	59,391	5,689	7,125	317,838
Belgium.....	492	4,911	460	98	58,288	173,250	1,710	18,111	76,073	3,325	3,276	132,401
France.....	355	274	93	60	22,362	11,692	410	20,069	68,344	340	629	51,492
Portugal, Azores, and Madeira.....	15,643	233	912	4,484	40,201	14,723	5,352	4,502	58,556	283	4,573	194,261
Spain and the Canaries.....	1,226	38	151	519	9,379	3,542	12,249	2,217	6,102	80	730	27,523
Gibraltar.....	2,503	127	520	150	19,867	4,570	750	5,887	71,955	379	1,817	76,393
Italy.....	4,124	3	1,109	..	100,192	19,324	3,868	36,388	130,386	1,900	11,997	223,694
Malta.....	854	..	123	6	2,568	2,082	2,000	665	8,800	96	1,115	12,210
Ionian Islands.....	29	..	7	..	500	1,774	320	308	191	..	140	1,713
Morea and Greek Islands.....	2	..	..	..	1	50	..	296	..	1	8	74
Turkey and Continental Greece.....	690	2	5	..	10,340	5,310	350	7,369	8,045	300	1,251	62,181
Syria and Palestine.....	..	..	..	..	508	..	250	..	7,600	..	..	1,268
East Indies and China.....	58,552	12	222	20	133,672	79,504	41,628	11,622	48,015	1,084	8,184	530,687
New South Wales, Van Diemen's Land, Swan River, and Southern Australia.....	4,393	72	888	190	13,593	94,580	339,968	57,882	38,799	11,198	11,629	181,377
Cape of Good Hope.....	1,440	314	501	325	5,027	30,307	21,600	7,173	7,249	1,107	1,998	33,652
Other Parts of Africa.....	1,591	..	41	93	3,767	6,970	40,40	165	906	1,269	2,631	20,349
British Colonies in North America.....	42,410	761	2,947	536	74,574	529,016	364,351	100,226	65,444	29,130	33,443	511,190
British West Indies.....	4,607	5	247	640	14,246	42,664	52,540	3,784	60,324	1,611	13,114	84,833
Foreign West Indies.....	3,359	12	..	79	14,503	2,840	159,532	8,980	11,030	185	10,290	67,443
U. S. of America.....	143,898	230	11,709	235	497,608	126,791	1,051,743	316,483	1,088,519	109,388	79,229	2,142,359
Brazil.....	30,976	30	1,689	4,037	39,985	7,400	114,524	7,578	63,609	1,465	21,220	247,809
Mexico and the States of South America.....	50,444	..	6,167	2,433	38,919	12,191	32,864	67,501	104,457	4,495	26,186	431,085
Isles of Guernsey, Jersey, Alderney and Man.....	2,830	47	7	44	3,826	87,935	21,989	19,551	..	32	2,155	37,805
Total.....	392,854	25,025	32,572	27,740	1,665,596	1,727,625	3,148,846	906,489	2,388,282	175,023	253,879	6,271,645

WILLIAM IRVING, Inspector-General of Imports and Exports.

AN ACCOUNT of the QUANTITY of SHEEP and LAMBS' WOOL Imported into the United Kingdom in the year 1839; specifying the Countries from which it came, the quantity that paid a Duty of One Penny per Pound, and the Quantity that paid a Duty of One Halfpenny per Pound; of the Quantity of FOREIGN WOOL re-exported during the same period, and the Countries to which it was sent; and the quantity remaining warehoused under bond on the 5th day of January, 1840:—

Quantity of Sheep and Lambs' Wool Imported into the United Kingdom:

	Year 1839.
From Russia	lbs. 7,966,594
Sweden	1 773
Denmark	633,623
Prussia	64,088
Germany	23,837,805
Holland	299,895
Belgium	259,617
France	83,141
Portugal and Madeira	1,024,944
Spain	2,409,634
Gibraltar	482,057
Italy	1,892,057
Malta	32,918
Turkey	1,183,532
Morocco	455,003
Sierra Leone and River Gambia	1,583
Cape of Good Hope	626,214
St. Helena	6,295
Mauritius	2,884
East India Company's Territories	2,103,546
New South Wales	6,621,291
Port Philip	273,572
Van Diemen's Land	3,212,698
Swan River Settlement	21,213
South Sea Islands	2,473
British North American Colonies	1,579
British West Indies	3,360
United States of America	149,163
States of Rio de la Plata	236,751
Chili	1,339,569
Peru	2,149,571
Guernsey and Jersey	428

Foreign Wool..... 57,379,923
Produce of the Isle of Man..... 16,021

Total Quantity Imported 57,395,944

Quantity of Foreign Sheep and Lambs' Wool retained for Home Consumption:

Charged with duty at 1d. per lb.	26,795,214
Ditto 1d. per lb.	13,293,851
Ditto 6d. per lb., being red wool	5,486
Duty free, being the produce of British Possessions	12,164,670

Total Quantity retained for Home Consumption..... 52,959,221

Quantity of Foreign Sheep & Lambs' Wool re-exported:

To Russia	14
Germany	25,380
Holland	101,262
Belgium	275,235
France	63,859
Italy	224
British North American Colonies ..	1,508
United States of America	224,431
Isle of Man	3,136

Total Quantity Re-exported.. 695,049

Quantity of Foreign Sheep and Lambs' Wool remaining warehoused under Bond on the 5th Jan. 1840 7,451,016

AN ACCOUNT of the QUANTITY of BRITISH SHEEP and LAMBS' WOOL, and WOOLLEN YARN Exported from the United Kingdom in the year 1839; specifying the Countries to which they were sent:—

COUNTRIES TO WHICH EXPORTED.	YEAR 1839	
	Sheep and Lambs' Wool.	Woollen and Worsted Yarn (including Yarn of Wool or Worsted mixed with other materials.)
	lbs.	lbs.
Russia	4,898	141,934
Sweden .....	..	802
Norway .....	..	561
Germany	1,148	1,770,536
Holland	38,551	723,166
Belgium	3,625,896	111,746
France	876,166	153,329
Portugal, Azores, and Madeira .....	..	2,540
Spain and the Canaries .....	..	4,360
Gibraltar .....	..	6,776
Italy .....	..	30,969
Turkey	35,840	..
East Indies and China .....	..	3,684
New South Wales .....	..	159
Western Coast of Africa ..	..	982
British Colonies in North America .....	..	19,455
British West Indies .....	..	200
Foreign West Indies .....	..	374
United States of America ..	19,984	324,320
Chili .....	..	168
Isles of Guernsey, Jersey, and Man	1,316	24,380
Total	4,603,799	3,320,441

UNITED STATES.

STATEMENT OF THE TOTAL ANNUAL IMPORT AND EXPORT OF COIN AND BULLION, AND THE EXCESSES, FROM OCTOBER 1, 1820, TO DECEMBER 31, 1839.

Years ending Sept., 30.	Import. Dolls.	Export. Dolls.	Excess of import. Dolls.	Excess of export. Dolls.
1821	8064890	10478059	—	2413169
1822	3369846	10810180	—	7440334
1823	5097896	6372987	—	1275090
1824	8379835	7014552	1365283	—
1825	6150765	8797055	—	2646290
1826	6880966	4908678	2782288	—
1827	8151130	6971306	1179624	—
1828	7489741	8243476	—	753735
1829	7403612	4924020	2479592	—
1830	8155964	1241622	6914382	—
1831	7305945	9014931	—	1708986
1832	9907594	5656540	250964	—
1833	7070368	2244859	4825509	—
1834	17911632	1676258	16235374	—
1835	13131447	6477775	6653672	—
1836	13400881	4324336	9076545	—
1837	10516414	4692730	5823684	—
1838	17747116	3508047	14239070	—
1839	5574263	8775443	—	3201180
In the 4th qr. 1839..	1131289	5899968	—	4768679
168841504	121222821	71826147	24207464	

Agg. of imp. 168841504 Agg. of excess of imp. 71826147
Do. of exp. 121222821 Do. do. of exp. 24207464

Excess of im. 47618683 47618683

ON FURROW DRAINING.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Being a reader of your valuable Magazine, I observe in your number for April, page 244, an article written on FURROW DRAINING, by a "FURROW DRAINER," from whose opinion regarding some points I would beg to differ.

It is alleged by your correspondent that furrow draining is a first-rate improvement in modern agriculture, and I am sure to this allegation every intelligent agriculturist will be ready to give his unqualified assent. Furrow draining is undoubtedly, on all clay or humid land, with a retentive subsoil, the ground-work of every agricultural improvement, and has been the means of facilitating much noble agricultural enterprise and profitable experiment; in fact it completely forms a new era in the management of the farm.

A "Furrow Drainer" goes on to state the period when draining commenced in the district from which he writes, giving a description of the manner in which drains are cut, to be filled with turf, wood, and stones, with the estimated cost. In describing the mode of filling drains with broken stones, which appears to me a good plan, he says, "and a covering of turf, furze, or straw, is put on, to prevent the small mould from getting amongst the stones." A "Furrow Drainer" does not contemplate that in putting furze or straw in a drain, above stones or tiles, these substances very soon decompose, and become a vegetable mould, very friable, and consequently calculated to go down amongst the stones, or be washed through the interstices of the tile channel by the filtration of atmospheric moisture, and in the course of a very short period will form little banks or impediments in the drain, and of course retard the current of water, or altogether destroy its usefulness, especially when in a level situation where little fall or run can be obtained. I am aware that the practice laid down by a "Furrow Drainer," of covering stones or tiles in drains with furze, straw, or litter of any kind, preparatory to filling in the earth, is quite prevalent in almost every district where I have seen draining executed, but, because common, it is not the less liable to mistake, and it has been proven so, very satisfactorily to my own mind, from practical observation. Draining, both deep and furrow, is an operation which I have studied much, and paid particular attention to the practical results of every experiment which has been made in that department of agricultural improvement, within my knowledge, and confidently assert that I have universally found those drains stand longest entire, and make the least discharge, that have been covered with a thin tough sod or scraw, above the stones or tiles, laid the green side undermost. This I have known to endure longer, and answer the purpose better, than any other article I have seen used; besides, a thin turf or sod can generally be got at no extra expense, and with little trouble, because when the contractor or workman has the line of drain marked out with the spade on both sides, (supposing the operation of draining to be executed in a lea field, which is now commonly the case, at least in this district,) the workman has only to take his spade, and carefully pare off a thin sod or turf from the site of the drain, and lay it to the opposite side to which he intends throwing the earth, and it is quite at hand when he wants it, at the filling process.

A little farther on, in a "Furrow Drainer's"

communication, he states that "the greater part of the carse being hard bottomed, soles are not thought necessary, and therefore not much used." It appears to me that furrow drainers have fallen into error on this point of no inconsiderable amount. If, in commencing any operation from the mere impulse of having seen the good effects of an experiment in any neighbouring district, without taking into consideration the varied results which must necessarily be effected under a multiplicity of circumstances connected with that operation, we are sure to be misled; and it is too often the case, that furrow draining is performed just as we see our neighbours do it, or perhaps the system changed to suit the opinion or caprice of some one who is supposed to have a knowledge of the matter, without ever giving ourselves the trouble of reflecting on the subject at all. I by no means, however, apply these observations to a "Furrow Drainer," but merely state what I know to be a fact, and which inert state of indifference regarding a thorough knowledge of furrow draining I have laboured to quicken and overcome. Now, I strenuously contend that furrow drains, in every description of soil, whether on a soft subsoil, or on the most tenacious clay or impervious till, ought to have soles. Where drains are made in moss or bog land, or wherever the bottom is soft, so as not to carry the tiles, and having a great flow of water, soles are indispensably necessary, but I consider them also necessary on other descriptions of subsoil, for the following reasons:—

1st. Where the ground is level or nearly so, the water runs much better on a well laid sole than on the earthy bottom; and also where the drains have much fall, and a strong current, soles are particularly suitable to prevent pooling.

2nd. A sediment is not so likely to be formed in the channel of a drain with a well laid sole, as when the water runs along the bottom of a drain finished with the shovel, which unavoidably leaves many little interruptions.

And last, although not least,—during summer, drains on a retentive till or clay bottom, generally discharge no water. Now, it is evident that the bottom of the drain becomes hard, and a crust is formed upon the surface, which, when the oozing springs again begin to issue forth, is thrown off, becomes softened or disunited by the increasing supply of water which runs the scaly mass along the bottom until it meets with some obstruction, forms itself into little mounds, which accumulate, and ultimately stop the drain.

In an earthy or sandy subsoil the evil increases to a greater extent. The crust affected by the action of the air in the drain, when free from water, and the earth thrown up by worms, form a greater depth, and to a greater extent, than many people are aware of, or are apt to suppose, and being of a finely pulverized substance, is easily washed into little embankments in the drain, and to a certainty, in no very considerable space of time, will destroy the usefulness of furrow drains to a great extent if not altogether. Besides, moles are apt to raise earth in furrow drains that have no soles laid, and so choke them up; whereas, when soles are used, none of the evils above enumerated can possibly take place: so, we ought always to keep in our minds' eye that the beauty and value of every improvement, whether in agriculture or otherwise, is in having it complete, and work to our satisfaction.

A "Furrow Drainer," in continuation of his subject, gives a few valuable hints regarding the

propriety of having tail or main drains, well sunk, and regularly cleaned out, which are essential points to be attended to; and after adverting to the depth he finds it necessary to make tile-drains, in the Case of Gowrie, (which in my opinion ought to be varied according to the nature of the soil and locality to be drained,) he ventures an opinion altogether contrary to the principle of furrow draining, and assuredly contrary to the testimony of not a few individuals who have had occasion to drain tenacious clay land: he says "and I am of opinion that, although the clays were perfectly consolidated above them, (the till channels,) they would still prove efficacious."

This is contrary to the clearest practical results. Many unsuccessful experiments have been tried in draining clay land, or land having a retentive subsoil, by open channels a certain depth beneath the surface. For instance, hay or straw ropes have been made of a certain size, and laid in trenches cut to the depth of from twelve to eighteen inches, and the earth or clay again replaced in the trench, above the rope, which no doubt soon became consolidated as the surrounding ground, and of course proved a fruitless attempt in the system of thorough drainage. Drains have been cut, too, in heavy clay land, in the form of a wedge, with spades made for the purpose, and the stamp cut out laid carefully on the side of the drain; and the covering process was performed by having a pole or round piece of wood, of a manageable length, and three or four inches diameter, which was laid in the bottom of the drain, and the stump or wedge-like piece of clay first taken out of the drain, being dressed on the bottom, was laid to rest upon the pole, and neatly fitted into the drain; when so much of the drain was filled in this way, the pole was drawn out, and the work carried on progressively until the whole was completed. The surface, under this system of drainage, was not destroyed, and in a short time the sward above the drain was equal to, if not superior, to the other parts of the field. Heavy cattle, of course, were not allowed to pasture for a considerable time, on land so drained, until the clay wedges, or covering of the drains or sewers, became perfectly united with its neighbouring parts; but this plan, too, was a failure in the system of furrow draining, experience clearly proving that so soon as the clay substance above the channel of the drain became perfectly united, and impervious to water, the land was in no better state than before the operation was commenced. I have, likewise, known drains cut in heavy clay land, and in land with a light top, and close retentive subsoil, and carefully laid with tile, but, from the want of stones or gravel being laid above the tile, or friable mould mixed with the clay to prevent cohesion, the drains in a short time became perfectly unavailable in rendering the land completely dry. The effect of the drains at first was very remarkable, but so soon as the clay surface became thoroughly mixed, during the operation of green cropping, and the particles of clay uniting together, and hardening into a solid crust, the ground during wet weather contained the atmospheric moisture to the same extent as before draining, even immediately above the drain, and I am sure the experience of many a furrow drainer and practical agriculturist will go to prove the same disheartening and disappointing circumstance.

Trusting that these remarks may be useful, and that you can give them a place in your valuable journal. I am, Sir, your very obedient servant,
Culhorn, 20th May. J. C.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Allow me through the medium of the Mark Lane Express to answer the enquiries of "A constant Reader," with regard to the means used to kill yellow weed, which I suppose to be what is called (in Surrey) yellow boy—though the term yellow weed is, like yellow boy, rather indefinite, as there are other weeds bearing yellow flowers. If it is yellow boy, and growing on stiff land, a good dressing of chalk is the first step; if on lighter or sandy land, a light coat or dressing of chalk, or what I think is rather better, a dressing of soap-ashes. The following quantum of chalk on heavy cold land per acre, say 8 or 10 waggon loads; on light sandy land 5 waggon loads will be ample, even less would do; there is a danger of over chalking on light land, it should only be applied as medicine; 4 waggon loads of soap ashes has been found to do well; as a further help I should deem it necessary to drill and hoe. I consider the hoe, well applied, a great friend to the farmer. The above remarks are supposing (if the land is wet and cold naturally) that the draining thereof has been FIRST OF ALL attended to, because I am convinced it would be of incalculable benefit; indeed, if my observations are correct, the best land in the kingdom has been neglected more than any other—and draining ought to be the first act of the farmer; the landlord (at least) finding the materials. I have often thought the landlord's future interest would be found in his causing (by contributing the MAIN OF THE EXPENCE) his land to be well drained. If the above is worth insertion I shall be glad to contribute again. CLODPOLLE.

P.S. If "the constant reader" should be ignorant of the real nature of the weed spoken of, and it should turn out to be what is variously termed, but generally known by being called "Kilck or Charlick", my observations and recommendations would not apply, except the draining clause, which will be found of use on all cold wet lands, and as chalk acts on such land as a pulveriser, consequently such weeds as charlick can be easier got out of the soil, though not DESTROYED by the effect of the chalk. Clodpole, though a practical farmer, has never attempted to scribble for the public before, and though he regularly takes and reads the Express, he is not aware whether or no he is incurring any expense by writing thus; a hint on that head would oblige Clodpole in next—if his story is worth attention at all.

THE SHEEP SPIDER FLY.—Sheep are seldom at any period, or in any condition, wholly free from this fly (*Melophagus*), but its attacks are always most vigorous on hogs, and such as are in an unhealthy state. The irritation caused by the insertion of the proboscis and strongly hooked claws into the skin is so great, that the animal tries to obtain relief by tearing the wool with its teeth whenever the affected part is within reach of the mouth. This propensity occasionally gives rise to a singular accident. When the neck is much bent in the effort to reach the place irritated, the teeth sometimes become fastened in the wool so firmly, that the animal cannot extricate them, and soon loses the power of its neck. If relief is not afforded, it necessarily perishes in a short time. In such a case shepherds say that the sheep dies by being bridled.—*Quarterly Journal of Agriculture.* The same periodical says one of the best remedies against this pest is the process of smearing with spirit of tar, tobacco liquor, corrosive sublimate, and other substances of a similar kind.

IMPORTANT SALE OF SHORT- HORNS, &c. &c.,

AT MR. PARKINSON'S, AT THE BADWORTH FARM,
NEAR RETFORD, NOTTINGHAMSHIRE, BY MR.
WETHERELL, ON FRIDAY MAY 20TH, 1840.

The sale, although advertised to take place at eleven o'clock, did not commence until after one, at which time a very large company had assembled. Amongst the rest we noticed H. B. Simpson, Esq., Fairfax Fearnley, Esq., T. W. Edge, Esq., Strelley; G. S. Foljambe, Esq., F. T. Foljambe, Esq., Wm. Ladds, Esq., Ellington; Henry John Yorke, Esq., Thrapstone; Charles Barnett, Esq., Beds.; G. P. Harrison, Esq., Darlington; W. Beaufort, Esq., Biggleswade; R. M. Jaques, Esq., Richmond; J. Bradley, Esq., Blyth; William Holdsworth, Esq., Wm. Marris, Esq., Winterton; Frederick Walker, Esq., Blyth; Wm. Cartwright, Esq., Tathwell; Samuel Wiley, Esq., Easingwold; Henry Machin, Esq., Gateford; J. Clover, Esq., Cambridge; Rev. W. Fenton, Mattersey; Rev. F. O. Morris, Ordsall; Rev. Charles Eyre, Carlton; Rev. T. Cator, Messrs. Rose, Cottam; Hodgkinson, Torworth; Sharpe, Scarthing Moor; Clarke, Bamby Moor; Allison, Bilby; Short, Martin; Parkinson, Leyfield; Parkinson, Muskham; Henry and John Beavor, Blyth; R. Hodgkinson, Sen. and Jun., Morton Grange; G. Shaw, J. Rogers, Ranby; Weightman, Torworth; Bentley, Rotherham; Gyles, West Retford; Hall, Wiseton; Bower, Moorgate House; Wilkinson, Lenton; Booth, Cotham; Crofts, Ranskill; Cattle, Burghley; Robinson, Bletsall; Thompson, Arnin; Smith, Raisin; Wilkinson, Lenton; Booth, Louth; Codd, Grimsby; Wiley, Bransby; Wharton, Hatfield; Sandy, Homeclave, &c. &c. &c. After the conditions of sale had been read over and agreed to, the sale proceeded as follows:—

LOT COWS AND HEIFERS.

- 1 *Catalani*, roan, 6 years old, 28 gs.—Mr. Clover, Newmarket.
- 2 *Clementina*, roan, 5 years old, 30 gs.—Mr. Clover.
- 3 *Minster*, roan, 8 years old, 23 gs.—Mr. Kirkham.
- 4 *Fume*, roan, 7 years old, 24 gs.—Mr. Morley, Booth Flery.
- 5 *Brilliant*, roan, 6 years old, 25 gs.—Mr. Carter, Howden.
- 6 *Red Cherry*, red, 4 years old, 24 gs.—Mr. Barnett, Stratton Park.
- 7 *Sandal*, red, 5 years old, 20 gs.—Mr. Barnett.
- 8 *Junio*, red and white, 8 years old, 31 gs.—Mr. Barnett.
- 9 *Blanch*, white, 9 years old, 22 gs.—Mr. Beaufort.
- 10 *Palmblom*, white, 9 years old, 24 gs.—Mr. Kirkham, Hagnaby.
- 11 *Miss Salt*, roan, 6 years old, 24 gs.—Mr. Clover.
- 12 *Abess*, roan, 8 years old, 41 gs.—Mr. Hood, Nettlesham.
- 13 *Landlady*, red, 7 years old, 32 gs.—Mr. Beaufort.
- 14 *Nidia*, white, 5 years old, 41 gs.—Mr. Barnett.
- 15 *Evelina*, red, 6 years old, 28 gs.—Mr. Morley.
- 16 *Funny*, roan, 3 years old, 27 gs.—Mr. Clarke.
- 17 *Bellina*, roan, 5 years old, 30 gs.—Mr. Long.
- 18 *Minna*, roan, 8 years old, 30 gs.—Mr. Trims.
- 19 *Durham*, roan, 5 years old, 45 gs.—Mr. Codd, Holton.
- 20 *Elta*, red, 4 years old, 36 gs.—Mr. Jaques.
- 21 *Crotchet*, red, 6 years old, 30 gs.—Mr. Ladds.
- 22 *Aravice*, roan, 8 years old, 33 gs.—Mr. Hood.
- 23 *Fashion*, red, 5 years old, 46 gs.—Mr. Jaques, Easby.
- 24 *Sunflower*, red and white, 5 years old, 31 gs.—Mr. Townsend.
- 25 *Zuima*, roan, 9 years old, 25 gs.—Mr. Morley.
- 26 *Miss Smith*, red, 7 years old, 34 gs.—Mr. Beaufort.
- 27 *Pink*, red and white, 5 years old, 22 gs.—Mr. Hammond.

Lot

- 28 *Ione*, roan, 6 years old, 27 gs.—Mr. Morley.
- 29 *Caradori*, roan, 3 years old, 25 gs.—Mr. Broomfield.
- 30 *Rosalind*, roan, 4 years old, 30 gs.—Mr. Barnett.
- 31 *Lily*, white, 3 years old, 28 gs.—Mr. Yorke.
- 32 *Innocence*, white, 3 years old, 31 gs.—Mr. Booth.
- 33 *Alba*, white, 6 years old, 23 gs.—Mr. Yorke.
- 34 *Madeline*, dark roan, 3 years old, 31 gs.—Mr. Booth.
- 35 *Coriana*, roan, 3 years old, 29 gs.—Mr. Barnett.
- 36 *Adelaide*, roan, 4 years old, 220 gs.—Mr. Ingham, Halifax.
- 37 *Quicksilver*, roan, 3 years old, 21 gs.—Mr. Maw.
- 38 *Fleur-de-lis*, 4 years old, white, 17 gs.—Mr. Beasley.
- 39 *Marcia*, roan, 5 years old, 33 gs.—Mr. Morley.
- 40 *Rarity*, white, 5 years old, 34 gs.—Mr. Morley.
- 41 *Capable*, red, 5 years old, 41 gs.—Mr. Beaufort.
- 42 *Stately*, red and white, 5 years old, 26 gs.—Mr. Barnett.
- 43 *Pensive*, dark roan, 4 years old, 30 gs.—Mr. Frost.
- 44 *Tertia*, roan, 5 years old, 25 gs.—Mr. Hood.
- 45 *Vesper*, roan, 3 years old, 27 gs.—Mr. Hammond.
- 46 *Morea*, roan, 4 years old, 30 gs.—Lord Galway.
- 47 *Pine Apple*, red and white, 4 years old, 21 gs.—Mr. Barnett.
- 48 *Laura*, red and white, 5 years old, 40 gs.—Mr. Barnett.
- 49 *Clara*, roan, 4 years old, 35 gs.—Mr. Topham.
- 50 *Flora*, red and white, 3 years old, 29 gs.—Mr. Clover.
- 51 *Victoria*, roan, 2½ years old, 60 gs.—Mr. Jaques.
- 52 *Bracelet*, roan, 2 years old, 27 gs.—Mr. Jaques.
- 53 *Buxom*, roan, 2 years old, 27 gs.—Mr. Taylor.
- 54 *Quintina*, red, 2 years old, 20 gs.—Mr. Clover.
- 55 *Cara*, roan, 2 years old, 22 gs.—Mr. Clover.
- 56 *Opera*, white, 2 years old, 18 gs.—Mr. Clover.
- 57 *Constantia*, red and white, 2 years old, 25 gs.—Mr. Clarke, Bamby Wood.
- 58 *Dolphin*, roan, 2 years old, 26 gs.—Mr. Clarke.
- 59 *Specimen*, roan, 2 years old, 27 gs.—Mr. Kirkham.
- 60 *Stella*, red and white, 2½ years old, 37 gs.—Mr. Morley.
- 61 *Advice*, roan, 2 years old, 30 gs.—Mr. King, Brinkley.
- 62 *Daphne*, roan, 2 years old, 31 gs.—John Booth.
- 63 *Bluebell*, roan, calved Jan. 31, 1838, 42 gs.—Mr. Ingham.
- 64 *Susan*, red and white, 1½ years old, 27 gs.—Mr. Thompson.
- 65 *Lumatic*, white, 1½ years old, 18 gs.—Mr. Clover.
- 66 *Siberia*, white, calved May 1, 1838, 25 gs.—Mr. Brooks.
- 67 *Drusilla*, roan, calved April 23, 1838, 40 gs.—Mr. King.
- 68 *Cora*, red and white, calved June, 1838, 35 gs.—Mr. Sandy, Holm Laec.
- 69 *Flavia*, roan, calved July 4, 1838, 54 gs.—Mr. Ingham.
- 70 *Lerna*, red, calved Aug. 21, 1838, 15 gs.—Mr. Bircham.
- 71 *Adeline*, white, calved July 31, 1838, 61 gs.—Sir Edward Mostyn.
- 72 *Lina*, roan, calved October 9, 1838, 30 gs.—Mr. Thompson.
- 73 *Caprice*, red, calved Oct. 12, 1838, 13 gs.—Mr. Maw.
- 74 *Miss Cartwright*, roan, calved October 22, 1839, 22 gs.—Mr. Clarke.
- 75 *Madam*, roan, calved March 10, 1839, 30 gs.—Mr. Codd.
- 76 *Semele*, roan, calved March 22, 1839, 26 gs.—Mr. Clarke.
- 77 *Hecate*, white, calved April 14, 1839, 26 gs.—Mr. Barnett.
- 78 *Fatima*, roan, calved Aug. 18, 1839, 30 gs.—Mr. Jaques.
- 79 *Neva*, white, calved July 17, 1839, 16 gs.—Mr. Broomfield.
- 80 *Zenobia*, white, calved Aug. 20, 1839, 10 gs.—Mr. Smith, West Raisin.

LOT

- 81 *Arrot Lass*, roan, calved Sept. 12, 1839, 22 gs.—Mr. Booth, Kelston.
 82 *Dead*.
 83 *Margaret*, white, calved Nov. 17, 1839, 13 gs.—Mr. Townsend.
 84 *Justina*, roan, calved Nov. 28, 1839, 18 gs.—Mr. Booth.
 85 *Lucia*, roan, calved Jan. 18, 1840, 16 gs.—Mr. Townsend.
 86 *Mentha*, white, calved Jan. 31, 1840, 13 gs.—Lord Galway.
 87 *Penelope*, red and white, calved Feb. 22, 1840, 12 gs.—Mr. Beasley.
 88 *Dead*.
 89 *Clariada*, nearly white, calved Feb. 29, 1840, 12 gs.—Mr. Townsend.
 90 *Dead*.
 91 *Ebricty*, roan, calved April 23, 1840, 16 gs.—Mr. Jaques.
 92 *Flirt*, white, calved April 9, 1840, 10 gs.—Mr. Clarke.
 93 *Sauce*, roan, calved April 13, 1840, 11 gs.—Mr. Clover.
 94 *Bustle*, red, calved April 14th, 1840, 2 gs.—Mr. Thorold.
 95 *Dead*.
 96 *Conceit*, roan, calved April 20, 1840, 16 gs.—Mr. Booth.
 97 *Dead*.
 98 *Lavender*, calved in 1834, 30 gs.—Mr. Bower.
 99 *Letitia*, calved in 1835, 29 gs.—Lord Galway.
 100 *Bertha*, calved in 1837, 27 gs.—Mr. Frost.

BULLS.

LOT

- 1 *Collard*, (own Brother to Clementi, sold at the Strelley Sale in Sept. 1839, for 200 guineas,) roan, calved Sept. 4, 1839, 290 gs.—Mr. Fox, of Foxhall, Ireland.
 2 *Duvertion*, white, calved May, 1838, 70 gs.—Mr. Ladds.
Grachus, roan, calved Sept. 1838, 52 gs.—G. W. Hutten, Esq., Gate Burton.
 4 *Bob Logic*, red and white, calved March 27, 1837, 25 gs.—Mr. Bower.
 5 No bid.
 6 *Brentwood*, roan, calved March 12, 1839, 35 gs.—Mr. Perceval.
 7 *Dead*.
 8 *Shirley*, red and white, calved Jan. 3, 1839, 25 gs.—Duke of Rutland.
 9 *Julius*, red and white, calved March 1839, 40 gs.—Mr. Clover.
 10 *Plymington*, roan, calved March 20, 1839, 21 gs.—Mr. Hickson.
 11 *Bez*, roan, calved April 14, 1839, 21 gs.—Mr. Holmes.
 12 *Stevens*, red and white, calved June 8, 1839, 25 gs.—G. S. Foljambe, Esq.
 13 *Hudibras*, roan, calved June 7, 1839, 17 gs.—Mr. Cromdy, Aberdeen.
 14 *Salamis*, roan, calved July 29, 1839, 13 gs.—Mr. Allison.
 15 *Pollington*, roan, calved, Sept. 10, 1839, 9 gs.—Mr. Sanderson.
 16 *Lemnos*, roan, calved Aug. 14, 1839, 33 gs.—Mr. Clover.
 17 *Bourbon*, white, calved Oct. 28, 1839, 26 gs.—Mr. Thompson.
 18 *Brigand*, roan, calved Dec. 12, 1839, 14 gs.—Mr. John Hood.
 19 *Fergus*, red and white, calved Feb. 19, 1840, 6 gs.—Mr. Outram.
 20 *Marshall Soult*, white, calved March 6, 1840, 8 gs.—Mr. Clover.
 21 *Quibbler*, red, calved April 3, 1840, no bid.
 22 *Quirk*, white, calved April 3, 1840, 7 gs.—Mr. Clover.
 23 *Bechebor*, white, calved April 24, 1840, 4 gs.—Mr. Clover.

Lot

- 24 Another calf, 6 gs.—Mr. Clover.
 25 Ditto.—Ditto.
 26 Ditto, 3 gs.—Mr. Bromley.
 27 Beast, 22 gs.—Mr. Dirk.
 28 Ditto, 23 gs.—Mr. Bower.
 29 Ditto, 11 gs.—Mr. Thoroby.

NORTH SUFFOLK AND SOUTH NORFOLK AGRICULTURAL ASSOCIATION.

The second Spring Show of this Association took place on Friday, May 22, at Harleston, when the attendance of agriculturists was considerable.

The stock was exhibited in a meadow belonging to Mr. Shipston, and the whole displayed considerable merit; for though the number of animals was small, in comparison with the show of last year, yet the appearance of the stock indicated that great attention has been paid by the breeders, not only to symmetry, but also to what is of greater importance, blood and constitution. Mr. Case, of Thorndon, Mr. Dykes, of Braiseworth, Mr. Taylor, of Starston, and Mr. Ebdon, of Fressingfield, shewed some good cart mares and foals; particularly the latter gentleman, whose stock attracted much notice, but which unfortunately arrived too late for competition. A cart gelding, also shewn by Mr. Taylor, was a clever animal. There was a splendid Suffolk bull, belonging to Lieut. Gen. Sir E. Kerrison, M.P., the President, which was greatly admired; but this animal having before won a prize, could not enter the lists of competitors at this exhibition. Mr. Case, and Mr. Dykes, shewed some Suffolk cows; and cows of other breeds were shewn respectively by Mr. Spelman, of Aldburgh, Mr. Theobald, of Starston, and Mr. Harvey of Harleston. The latter gentleman also shewed a dairy of eight Durham cows, and a bull, which were reckoned by competent judges to be very superior animals; but some of these had also successfully competed at former exhibitions. Mr. Dykes shewed a good Suffolk, and Mr. Harvey, a good Durham heifer, for the dairy. This description of stock was particularly good. As to sheep there was very little competition. Mr. Harvey, of Harleston, produced some good shearing Southdown ewes with lambs, and also some good Southdown ewe hoggets. Sir Edward Kerrison had some of the latter on the ground, which attracted much notice. Mr. C. Etheridge, of Starstone, shewed a capital Leicester ewe hogget, which was much admired for symmetry and texture of wool: Mr. Muskett, of Roydon, a very good fat Shearling Wether Sheep, and Mr. Harvey, two Southdown Shearling Rams, which were much noticed by graziers. Amongst the fat stock, of which there was only a small exhibition, Mr. C. Etheridge shewed a home-bred heifer, which like the stock generally belonging to that gentleman, possessed considerable merit. Mr. Harvey also, who is reputed to be a good breeder and an equally good judge of stock, exhibited a very fine half-bred Durham heifer, twenty-four months old, which was greatly admired, also as extra stock, a fat white Durham heifer, three years old; this was reckoned a good specimen of the breed. The quantity of swine was unusually small. We noticed only two fat hogs the property of Lord Henniker, and Sir E. Kerrison, and both were considered to be good animals.

The Judges were Mr. James Cooper, of Blythburgh; Mr. Louis Cottingham, of Reydon; and Mr. S. Robinson, of Henstead.

During the day there were present N. S. Holmes, Esq., the Rev. W. Lee, the Rev. J. P. Spencer, the Rev. R. Donison, the Rev. T. Sewell, T. C. Brettingham, Esq., W. Hazard, Esq., Dr. Crisp, Dr. Bunn, T. Utten, Esq., L. Taylor, Esq., B. Bond, Esq., the Rev. H. Harrison, C. Etheridge, Esq., F. W. Etheridge, Esq., J. Gedney, Esq., J. Clarke, Esq., James Ebdon,

Esq., Mr. H. Kersey, Mr. James Hill, Mr. E. Kersey, Mr. G. Gedney, Mr. R. B. Harvey, Mr. Flowerdew, Mr. Cooper, Mr. Cottingham, Mr. S. Robinson, Mr. Cuse, Mr. Peck, Mr. James Warde.

The Prizes were adjudged as follows:—

FOR STOCK.	£	s.	d.
To the owner of the best Suffolk cart mare, with foal at foot: Lombe Taylor, Esq., of Starston	3	0	0
To the owner of the best two-year-old cart filly, no competition	2	0	0
To the owner of the best two-year-old Suffolk cart gelding: Lombe Taylor, Esq., of Starston	2	0	0
To the owner of the best Suffolk bull: C. Etheridge, Esq., of Starston	3	0	0
To the owner of the best bull of any other breed: no competition	3	0	0
To the owner of the best Suffolk cow: Mr. P. Dykes, of Braiseworth	2	0	0
To the owner of best cow of any other breed: Mr. R. B. Harvey, of Harleston	2	0	0
To the owner of the best two-year-old heifer, for the dairy, of any pure-breed: Mr. R. B. Harvey, of Harleston	2	0	0
To the owner of the best five shearing Southdown ewes, with lambs by their side: Mr. R. B. Harvey, of Harleston	2	0	0
To the owner of the best five shearing ewes of any other pure-breed, with lambs by their side: no competition	2	0	0
To the owner of the best five Southdown ewe hoggets: Sir Edward Kerrison, Bart., M.P.	1	10	0
To the owner of the best five ewe hoggets of any other pure-breed: C. Etheridge, Esq., Starston	1	10	0

PRIZES FOR FAT STOCK.

To the owner of the best five fat shearing wether sheep: Mr. C. Muskeitt, of Roydon ..	1	10	0
To the owner of the best fat Suffolk or Norfolk home-bred steer or heifer: C. Etheridge, Esq., of Starston	3	0	0
To the owner of the best fat steer or heifer of any other breed: Mr. R. B. Harvey, of Harleston	3	0	0
To the owner of the best fat hog: Sir E. Kerrison, Bart., M.P.	1	0	0

SWEEPSTAKES:

A sweepstakes of ten shillings each, with two pounds added by Lord Bayning, for the best hackney mare or gelding, not less than four years old, not exceeding 15½ nor less than 14½ hands in height, was awarded to Mr. R. B. Harvey, of Harleston, beating Sir E. Kerrison, the Rev. J. Beddingfield, and Mr. G. Edwards.

A sweepstakes of ten shillings each, for the best Suffolk two-year-old cart gelding.—Not filled.

A sweepstakes of ten shillings each, for the best Suffolk two-year old cart filly.—Not filled.

A sweepstakes of ten shillings each, for the best shearing Southdown tup, was awarded to Mr. R. B. Harvey.

A sweepstakes of ten shillings each, for the best five shearing Southdown ewes, was awarded to Mr. R. B. Harvey.

A sweepstakes of ten shillings each, for the best Suffolk bull, was awarded to Sir E. Kerrison, beating C. Etheridge, Esq.

A sweepstakes of ten shillings each, for the best bull of any other pure-breed, was awarded to Mr. R. B. Harvey.

A sweepstakes of ten shillings each, for the best Suffolk cow.—Not filled.

A sweepstakes of ten shillings each, for the best cow of any other pure-breed, was awarded to Mr. R. B. Harvey.

A sweepstakes of ten shillings each, for the best Suffolk two-year-old heifer, was awarded to C. Etheridge, Esq.

A sweepstakes of ten shillings each, for the best

Suffolk yearling heifer, was awarded to C. Etheridge, Esq.

A sweepstakes of ten shillings each, for the best two-year-old heifer of any other pure-breed, was awarded to Mr. R. B. Harvey.

A sweepstakes of ten shillings each, for the best five pigs of the same litter, not less than three or more than six months old.—Not filled.

A sweepstakes of ten shillings each, for the best breeding sow, was awarded to Mr. P. Dykes, jun., of Eye.

SHEEP-SHEARERS.

Twelve Shearers on this occasion, all Norfolk men, entered the lists, and each having had assigned to him three half-bred Leicester sheep, belonging to Mr. Theobald, of Starston, the work began, the shearers laying the sheep on the ground instead of using a platform, as is the practice in some other counties, and which we believe is the practice in Suffolk. The men were not required to clip the sheep within a given period, but each was permitted to take his own reasonable time, that he might do the work well. The whole of the shearing was highly creditable to the several competitors, the wool being clipped close and even, with hardly a scratch upon the skins of the animals. The fleeces weighed from 6½ to 8½ lbs. each. The judges having examined the work, the prizes were awarded as follows:—

The first prize awarded to George Gooch, Watton	2	0	0
The second prize awarded to Charles Ray, Aldburgh	1	10	0
The third prize awarded to John Shanks, jun., Needham, near Harleston	1	0	0
The fourth prize awarded to W. Francis, Dickleburgh	0	10	0

THE DINNER.

About half-past four o'clock nearly 70 gentlemen partook of an excellent dinner, provided by Mr. Edwards, of the Magpie Inn. In the absence of Sir Edward Kerrison, in the House of Commons, the chair was taken by the Rev. W. Lee, who was supported on the right by the Rev. W. P. Spence, and on the left by C. Etheridge, Esq.: T. Utton, Esq., officiated as Vice-President. There were also present nearly the whole of the gentlemen whom we observed in the Shew Field. After the usual loyal toasts, the prizes were awarded: after which the company drank the health of the honourable and gallant President, amidst enthusiastic cheers. The other toasts were, "The Bishop and Clergy of the Diocese," "The Lord Lieutenants of the two counties," "Prosperity to the North and South Norfolk Agricultural Association," "Lord Bayning, with thanks to his liberality to the Association," "Lady Kerrison," "Lady Henniker," "Mrs. Holmes," "The Vice-Chairman," "The Venerable the Archdeacon Oldershaw, Rector of the Parish," "The Judges of the Stock," "The Treasurer and Secretaries," "The Successful Candidates," "The Royal English Agricultural Society of England," "The Unsuccessful Candidates," "The Members for the Two counties," "The Vice-Presidents."

HOW TO EXTIRPATE MOSS.—Your magazine of last month contained a query, "How to extirpate moss from the pleasure ground, without removing the turf?" I beg to recommend your querist to apply a top-dressing of wood-ashes in the proportion of 160 bushels to the acre, or thereabouts. I would not recommend it to be done in summer, as it will be too soon dissipated by the heat. Spring or autumn is the best time; if done in autumn, the ground, the following spring, should have a top-dressing of rotten dung, or other rich earth, mixed. If the ground is wet, draining will be highly necessary. It will thoroughly eradicate the moss, and bring the herbage of the most beautiful green colour and fine texture. As I have had ocular demonstration of what I write, I feel a pleasure in recommending it to the consideration of your querist—Jno. M'Envoy.—*Marnock's Flor. Mag.*

SPECIFICATION OF A PATENT FOR AN IMPROVED MOULD- BOARD FOR A PLOUGH;

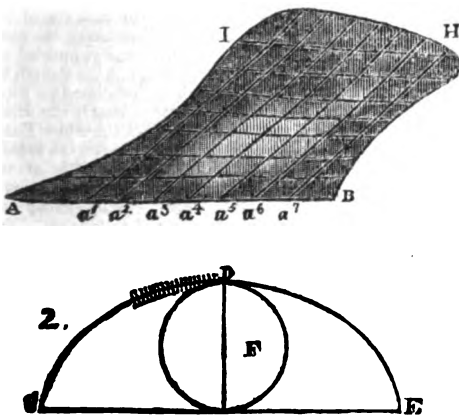
GRANTED TO SAMUEL WITHEROW, OF GETTYSBURG, IN THE COUNTY OF ADAMS, IN THE STATE OF PENNSYLVANIA, AND DAVID PIERCE, OF THE CITY OF PHILADELPHIA, OCTOBER, 1839. PATENT ASSIGNED TO SAMUEL WITHEROW.

To all whom it concerns: Be it known that we, Samuel Witherow of Gettysburgh, in the county of Adams and State of Pennsylvania, and David Pierce of the city of Philadelphia, in the same State, have invented an improvement in the manner of forming the mould boards of ploughs, denominated by us the cycloidal mould board; and we do hereby declare that the following is a full and exact description thereof.

It is a principle resting on mathematical demonstration that a cycloidal arc, is that which offers the least resistance to a descending body; and it is hence deducible that an ascending body will pass up a cycloidal curve with less resistance than up any other.

The construction of our mould boards is dependent upon this principle. In forming them we employ the cycloidal curve in two ways, namely, to the formation of the concave of the mould board in the lines of ascent of the sward or furrow slice, in the act of ploughing. The second application of the cycloidal curve, is in the convex curve along the sole of the plough, constituting the part which enters and cuts the ground horizontally.

FIG. 1.



In the accompanying drawing, fig. 1, represents a mould board, A, being its point, and B, its heel; the line A, B, is that of the sole, constituting the lower edge which cuts the furrow slice horizontally. This curve in a plough which has been essayed, and has been found to answer well, was generated by a circle of eighteen inches in diameter.

In fig. 2, the curve C, D, E, may represent the cycloid generated by the circle F, the point D, which is that of the least curvature, corresponds with the point A, of the plough, fig. 1, the cycloidal line continuing to the hind part, or heel, at B. It will no doubt be advantageous to vary the curve according to the nature of the soil, a point to be determined by experience, but whatever variation may be found useful in this respect is still to be made in conformity with the principle upon which we proceed, namely, that of making it cycloidal.

The line I, H, along the upper part of the mould board, and in a plane parallel to that of the plane of the line A, B, we also make to fit the same cycloidal gauge.

In the plough which has been put in operation for the purpose of testing the principle, the lines of the ascent of the furrow slice, which govern the concavity of the mould board, were regulated by a cycloidal gauge made to a curve, generated by a circle of sixteen inches in diameter. Let C, D, G, fig. 2, represent such a gauge, and the lines a, a, fig. 1, to be assumed as those of the ascent of the furrow slice on the mould board; in forming said board we place the gauge in the direction of the line a, with the part D, which is that of least curvature at a, and thus proceed on until we arrive at the hinder part, B, H, withdrawing, or lowering the gauge at its lower end at each successive application, so that a smaller portion of the least curved portion towards D, and a larger portion of that towards C, shall touch the mould board; these successive depressions may be indicated by the division at b, upon the gauge. The degree in which the mould board shall curve, and hang over at H, for turning the furrow slice, may be varied according to the judgment of the maker, the curvature being governed by the diameter of the generating circle, and the degree in which the gauge is depressed at every successive application of it.

Having thus fully set forth the nature of our invention, and shown the manner in which we carry the same into operation, what we claim therein is the giving to our mould board the segment of a cycloid, convexly on its face in line leading from front to rear, and concavely in the lines of the ascent of the furrow slice, in the manner and for the purpose herein described.

SAMUEL WITHEROW.
DAVID PIERCE.

REMARKS BY THE PATENTEE.—A principal object in ploughing is to pulverize the soil, and the only way in which this can be effected by the plough, is by bending the furrow slice on a curved surface, so formed as that it shall also twist it somewhat in the manner of a screw. Such a surface will be formed by taking a strip of iron, and twisting it after the manner of a screw auger; and if there is given to this piece of iron a greater twist at one end than at the other, cycloidal curves may be thereby produced. Now as the curvature of the cycloidal mould board generally increases from the lowest to the highest point of ascent, it follows, necessarily, that the furrow slice in passing along it will be more and more bent as it ascends.

By forming the fore part of the mould by means of that part of the cycloidal gauge which has the least curvature, and the hinder portion by that part which has the greatest, the bending of the furrow will continue, and be increased, as it passes horizontally, as well as in its ascent.

By forming the lines of ascent cycloidal concavely, and horizontal lines cycloidal convexly, the twist in the mould board will gradually increase from the fore to the hinder part, as the curves contract, which will operate very advantageously in pulverizing the soil. The convex cycloidal form given to the horizontal lines will cause the furrow slice to leave the mould board in a direction well calculated to prevent it from falling off in segments. The advantages possessed by this mould board, as has been abundantly proved in practice, are, that it will run light, and that it will turn the furrow slice over in a connected sheet, well pulverized.

ON A NEW METHOD OF FEEDING SHEEP ON TURNIPS.

BY JAMES STEWART MENTEATH, ESQ., YOUNGER,
OF CLOSEBURN.

(From the Quarterly Journal of Agriculture.)

"No person ever deserved better of a country than he who first cultivated turnips in the field. No plant is better fitted for the climate of Britain,—no plant prospers better in the coldest part of it,—and no plant contributes more to fertility. In a word, there has not, for two centuries, been introduced into Britain a more valuable improvement."—*Lord Kames's Gentleman Farmer.*

Of all the domestic animals of our island, sheep are of the greatest importance to the farmer and the community. Sheep can be reared in situations where scarce any other animal can subsist. In their fleeces they supply a valuable article, which, by its manufacture in the woollen trade, gives employment and a living to thousands, and thus contributes, in no small degree, to the productive labour, the commercial prosperity, and the opulence of every country, in which these animals are bred on a large scale. Sheep husbandry, being so very valuable a branch of rural economy, well deserves the utmost attention of the farmer, who derives no small part of his profits from it. Though much has been done to improve the breed of sheep in Scotland, and to supply them with better food at all periods of the year, much yet remains to perfect the feeding of these animals when folded on turnips; and as every exertion is now making in our northern part of the island to render land more productive by drainage and subsoil ploughing, why should we be left behind other parts of the kingdom in making every proper effort to fatten our sheep in the shortest space of time, at the least possible waste of food, and in supplying greater quantities of butchers' meat, now so necessary at all times of the year for the sustenance of a population, whose numbers are yearly on the increase?

* "It may serve to afford some idea of the extraordinary increase and improvement of live stock in Scotland throughout the whole period (from 1723 up to the present time), and the extent to which the feeding process has been carried, to state, that Glasgow, in 1763, though that city had then a population of 30,000, the slaughter of cattle, for the supply of the public market, was wholly unknown. The number of sheep and oxen there required now does not materially differ in proportion to the greatly increased number of its inhabitants from that furnished to the city of London. In 1831, the population of London amounted to 1,472,000; and, at an average of three years, ending with that time, 156,000 head of cattle, and 1,238,000 head of sheep, were annually sold in Smithfield market (*M'Culloch's Statistical Accounts*, p. 586). In the other large towns of Scotland, there is reason to believe, a demand in a similar ratio exists. Such has been the extraordinary improvement in the condition and habits of the people. The whole of this supply of butchers' meat is now furnished to Scotland by her own agriculture; and, besides the large exportation of lean stock to the neighbouring kingdom, a very considerable number of fatted animals are continually being sent thither from the north, east, and south of Scotland,—an amount which has been lately much increased, from the

Great progress has been made in all branches of farming, but no department has undergone greater improvement than the feeding, rearing, and general treatment of sheep. During the late war, the rapid rise in the price of all kinds of meat, and the stimulus also given by numerous agricultural societies,—and, above all others, the Highland and Agricultural Society of Scotland, instituted to spread useful information and excite enquiry,—added to the example of many public-spirited farmers, gentlemen, and noblemen, are circumstances which have contributed, perhaps, to rouse the attention of every agriculturist to place the science of feeding farm stock on the best and most economical principles. How much soever Scotland may surpass the southern parts of the island in other branches of her husbandry, in that of feeding sheep, when folded on turnips, it must be admitted she has something to learn from the eastern counties of England.

The management of sheep, when fed on these roots, is well understood in Norfolk, Lincolnshire, and the Wolds of Yorkshire. The Scotch farmer, studious of his own interest, would do well to direct his attention to this subject. The treatment of sheep in the districts just named is not, perhaps, so generally understood as it deserves to be. We shall, therefore, offer a short description of it, hoping to see it ere long universally introduced into this country.

Since the introduction of turnip husbandry into Scotland, the cultivation of that valuable root has become universal. Abundance of food is thus supplied for the flocks during the winter season; greater numbers of these can be reared; and, by folding them on turnips, her poor, light, sandy, gravelly soils have been rendered fertile, and capable of yielding luxuriant grain crops. The introduction of steam navigation, also, a new era in Scottish rural economy, having brought the markets of the south within her reach, has encouraged many to cultivate more extensively the turnip crop. The demand also for fat meat being continually on the increase, it has become a profitable business to the farmer to feed as many sheep as he possibly can; and, instead of driving his flock southward in a lean state to market, the above facilities, and increased demand, have enabled him to bring them into good condition at home. Owing to all these things, a great revolution has been effected in the management of sheep. It ought, therefore, to be the aim, as it is the interest, of the Scottish proprietor to adopt in theory, and reduce to practice, whatever may enable him, in the readiest and least expensive way, to fatten his stock, and bring it into marketable condition. Towards this, he would be greatly assisted by following the method pursued by the English farmer of the eastern counties in his management of the flock.

It may be remarked, that the soil of the counties of England, where this new plan of feeding is now so generally practised, rests upon the chalk formation. As the soil in almost every case partakes of the ingredients that compose the rock upon which it lies, in the districts of which we speak, it is composed chiefly of calcareous matters,—flint mixed with vegetable mould of a sandy, loamy nature. In other parts of this chalky stratification, as in the Wolds of the East Riding

greater facilities afforded by steam navigation."—*Journal of English Agricultural Society*, vol. I., part I., p. 102.

of Yorkshire, we find more clay blended with the soil; and there is a subsoil in some places, of a reddish clay, verging in depth from a few inches to a foot or two, resting upon the chalk rock. This soil, made up of these constituent ingredients, naturally produces a good pasturage for sheep, though of a close, short herbage. Under a proper arable cultivation, it yields luxuriant crops of oats, barley, wheat, sainfoin, turnips, and mangels. Although this soil rarely possesses a depth of mould of more than five or six inches, it requires every twenty-four years to be top-dressed with chalk, which is raised from underneath out of deep pits, and then spread over the surface, at the expense of from 2*l.* to 3*l.* per acre. If this calcareous manuring be neglected, the grain crops become light and unproductive, the red clover degenerates into a worthless and dwindled plant, and the turnip failing to round and bulb, breaks out into the disease commonly known among the agriculturists by the name of "*fingers and toes*." On the other hand, this top-dressing of chalk, at the interval specified above, restores the productive virtues of the soil, and crops of all kinds are again yielded in abundance. This application of chalk to the soil affords a curious and striking instance of the necessity of dressing all soils whatever with calcareous manure. It is, for example, pursued with immense advantage in Craven, Yorkshire, which is one of the richest and oldest grazing districts in the north of England. This extensive tract is incumbent on the carboniferous, or mountain limestone; and its soil must, as we may well suppose, be highly impregnated with calcareous substances. Still, however, it is found essential to make it produce the grasses in abundance, and of good quality, that it be top-dressed every ten or twelve years, and that very largely, with newly burned lime. It is not unusual, we are informed, to lay on an acre as much as 300 imperial bushels of this mineral manure. Invigorated by this dressing, the grasses and clovers spring up in the richest luxuriance. And if this practice be indispensable in these highly calcareous counties, how much more necessary for all other soils, which, not resting upon a substratum of chalk or of limestone, have little in their composition of those ingredients essential to the promotion of their fertility, and the full development of their strength.* In an interesting article "*On increas-*

ing the depth of soil," by Mr. Johnson, which appeared in this journal lately, the farmer will learn that a large quantity of lime and other earthy substances, are yearly withdrawn from his soil by all the vegetable plants he cultivates on his farm. And he will also be made aware how necessary it is, from time to time, in order to preserve the fertility of his fields, to apply, in addition to animal and vegetable manures, those of lime and other earthy minerals, which the grain, grass, and root crops are every year abstracting from his land. The renovation of the soil by lime, in the method just mentioned, was not, it would appear, unknown to the Romans, while masters of our island. In the Wolds of Lincolnshire, and elsewhere in the chalk range of stratification, chalk pits of very great antiquity occur, and where is the improbability that that intelligent

that of the eastern counties being 26½; and of the western, 37. At Edinburgh it is 23½, whilst at Glasgow it is 29.65 inches. In the eastern counties the harvests are reaped seven days sooner than in the western, and, consequently, at less expense. Surely the western farmer should consider these facts. His fields ought to be subjected to a more thorough drainage, a greater number of them laid down in permanent pasturage, and new and then (the oftener the better) top-dressed with unstinted composts of lime, animal, and vegetable manures, that all the virtues of the soil may be brought out, and abundant vegetation produced. From the high value of dairy produce, and the increasing demand for fat meat, we are sure that a well-managed grazing system of husbandry in the western districts of Scotland, would return a higher profit than that of tillage. In the treatment of grass land, it will be found very useful to pass over it every spring in the month of April, either a heavy thorn bush, or a light barrow, once or twice. Afterwards to follow this scratching with a plentiful sowing of grass seeds, mixing with them some pounds of clover, red and white, and then give it a good rolling. The seeds collected in the hay-loft will go a great way to supply a sufficient quantity for every acre of the field. When the field is a meadow, either under irrigation or not, and mowed for hay, two or three pounds of Catstail-grass or Timothy, the *Fleum pratense*, should always be sown on each acre. No hay is superior to the Timothy in luxuriance and excellence, and in acceptability to the palate of all graminivorous animals. Nature seems to point out to man the necessity of replenishing every year his grass fields with fresh seeds. When she is left alone, she plentifully prepares a succession of plants, by shedding abundantly every where seeds to replace those plants that have disappeared. Since the introduction of sheep and cattle, the stalks of various grasses being eaten, few are left to bear and ripen their seed. Mowing the field, also, interferes with the ripening and shedding of seeds necessary for the production of fresh plants. Thus from constant grazing and repeated mowing of the same grass field, it is found in the generality of soils yearly to become thinner of plants, and yield lighter crops of hay than it had carried in former years. Were, however, this simple management, just recommended, carried into practice, our pasture and hay fields would be annually replenished with an abundance of fresh, healthy vegetation, and consequently would carry a greater number of stock, and yield to the scythe a heavier cut of hay. Whenever top-dressing is laid upon such fields, the same management ought to be applied to it.

* In the management of pasture on grass land there is much room for improvement in Scotland. It cannot be denied that we are too partial to the use of the plough, as if tillage were in every case the most profitable husbandry. Were a much larger extent of country kept permanently in pasture, were the enclosures effectively sheltered by belts of plantations and well drained, and the fields occasionally top-dressed with calcareous composts, we are confident that both landlord and tenant would find their respective interests promoted, their profits greater and also more secure. The climate of all the western parts of Scotland being humid, and saturated with moisture by frequent and copious rains, grazing and dairy husbandry would be found in very many districts to be more advantageous than tillage. It is believed, and, we might add, almost ascertained by actual experiment, that one-third more rain falls on the western side of Scotland than on the eastern. In proof of this we refer to the returns of the rain-gauge. The average quantity of rain that falls in Scotland within the year is calculated at 31 inches;

people, acquainted with the use of calcareous manure in agriculture, had availed themselves of the chalk to dress their tillage land in the districts where it is found? We may farther observe, that, in these light chalky soils, *bone manure* is most extensively used to raise turnips, and great improvement by this application has been effected in these soils.

It is generally allowed, that, in the feeding of all sorts of animals, the sooner their appetite can be satisfied, the sooner will they lie down to rest. In these circumstances, an animal very soon takes on flesh, and becomes fat. The reverse happens, when a long time is taken up in satisfying the cravings of their hunger. It is on this principle that the practice has been introduced into the eastern counties of England, of presenting to sheep, when they are folded on turnips, these roots cut up into long, thin, narrow slices. When this is not adopted, but the animals merely turned in upon turnips, and left to do the whole work themselves, many hours, often a whole day, are consumed, before they have satisfied the demands of nature; and thus little time remains for rest, rumination, and sleep.

The formation of the mouth of the sheep, indeed, points out to the owner of the flock the necessity of assisting the animal by artificial means to eat the turnip. Sheep, like all other ruminating animals, have eight cutting or incisor teeth in the front part of the lower jaw, but none in the upper. They have six grinding or molar teeth, on either side, both in the upper and lower jaw, making altogether the number of twenty-four. Between their front teeth and the grinders, there is a vacant space of nearly an inch and a half. It is very rare to find the newly-dropped lamb with any front teeth; but when a month old, it has a complete set of front cutting teeth. The two front teeth of the under jaw drop out at the end of the year; six months after, the two next to these are shed; and at the end of five years the teeth are all renewed. (See Blacklock's *Treatise on Sheep*, p. 10.) At or soon after Christmas, the two front teeth of the hogg sheep, when put on turnips, either fall out or become so loose as to prevent them from tearing up and masticating the root with ease. And it is believed by some, from the circumstance of these young sheep losing their broad or middle front teeth while put on turnips, that they never have them properly replaced with new ones. As winter sets in, the frost rendering the vegetable harder and more tough, particularly of such sorts as the Swede, whose firmness of texture makes them more durable, it must be evident that the young sheep, having their teeth in this defective condition, will find it no easy matter to obtain their daily meal. Hence the poor animals, in many instances, with bleeding mouths, pass the greatest part of the day painfully struggling to fill themselves; and are deprived of that wanted period for rest and rumination, so indispensable to bring them rapidly forward into condition. The owner is surprised and mortified, after having had his flock confined so many weeks, even months, to find that his hogg sheep, though abundance of good keep was supplied, are very far from being fat and fit for the butcher, and that they require, after the turnip season, to be pastured for some months on grass, to make them fit for the market.

The same remark applies with no less force to the more aged sheep, particularly the old ewes,

whose teeth, from various causes, are often in a decayed and defective state. It is a well-known fact, that, when folded on turnips which are frozen, there is not only greater danger of their falling off, but even of not being able sufficiently to satisfy their hunger. This evil can easily be prevented by cutting down the turnips into small, narrow pieces, and presenting them in wooden troughs. The sheep can take them easily into their mouth, and manage them with their grinding teeth, which are not liable to so many accidents and diseases as the front or incisor teeth, and which do not undergo so many changes.

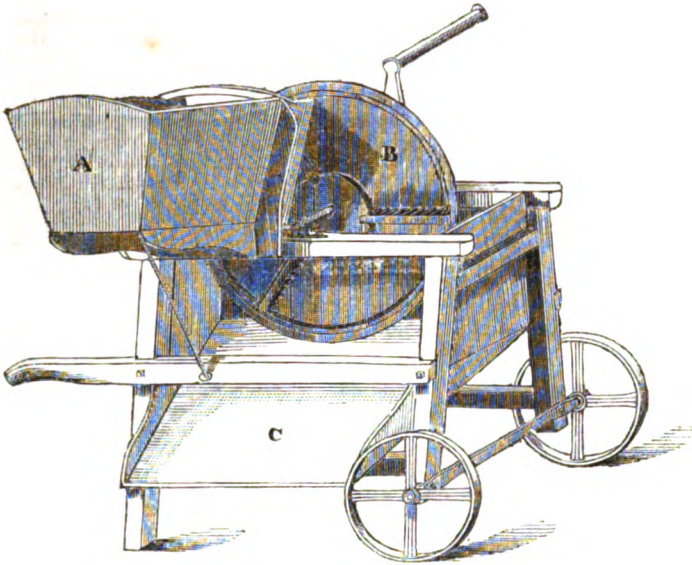
Besides the defective state of the teeth of young and old sheep disabling them to eat freely the turnips on the ground, Blacklock, in his able treatise on sheep (p. 145), states that there are many varieties of sheep incapable of feeding on turnips, owing to the form of the face, the uppermost jaw projecting considerably past the lower, hindering the chisel-shaped front teeth from being brought to bear upon the root. The sheep, having the jaw in this state, in Scotland, are called *grun-mouthed* sheep, resembling in their profile that of the pig.

Few intelligent flock-masters can be ignorant of the waste and injury their turnips suffer from allowing their sheep, when upon them, to eat them indiscriminately on the ground. Whenever sheep are let into a turnip fold, they run over the whole, and then eat such of the tops as they have not trampled down. Many of the turnips, before they are tasted by the sheep, are liable to have their bark or rind broken by their sharp hoofs, which injury exposes the root to the wet and frost, and thereby occasions unnecessary loss. Others of the turnips are wasted by the sheep partially scooping out only a little morsel, and then leaving them to be trampled upon with great waste. Besides, when the turnips, being traversed over and trodden upon, are bespattered and befouled with urine and dung, and other filth, they must be unsavoury and disagreeable to the taste of the animal. Much complaint, in the last November Agricultural Report for East Lothian for 1839, is made of the sheep that were feeding on turnips confined by hurdles, having been injured by the rainy season, making these roots so foul and dirty. Such destruction of food in our northern climate is a serious loss to the owner. Our severe, backward, and cold spring, so trying to the flock, ought to persuade the breeder to use his utmost endeavours to preserve, by every means in his power, his turnips; and husband them by every precaution he can think of, to enable him to carry his sheep through this season of the year, when they are most pinched for sustenance, and when the ewe and lamb require succulent and nutritious diet. The farmer of those eastern counties of England already named, alive to the loss he suffers by folding his sheep in the usual way, has for some time abandoned it, and adopted another much more economical, and one by which he can bring in a shorter time his animals to market. The successful feeding of sheep, of course, greatly depends upon the quality of food presented to them; and upon the resources which the farmer possesses for supplying it during the severest seasons of the year. It cannot be effected without exact regularity in portioning it out, and strict economy in the management of the different articles on which they are to be supported.

Having thus, in a general way, stated that much remains to be done in Scotland toward the im-

provement of the management of sheep, and advanced a few reasons why this department of husbandry ought to engross a larger portion of the farmer's attention, we now proceed to a short description of the method pursued by the sheep-farmers of the eastern counties of England.

In the first place, a turnip-cutting machine, provided. In the construction of these there is great variety. We have inserted a drawing of one of the most approved form, from which the nature of the turnip-cutting machine will be understood.*



Some idea may be formed of the extent and estimation in which cutting turnips for sheep is held in some parts of England, when we state that Mr. Crosskill, an ingenious maker of agricultural

implements at Beverley, informed us that he had, within these last three years, supplied 400 turnip-cutting machines to the farmers in that part of Yorkshire, each machine costing 5*l*.⁶ To work

* For the information of those of our readers who have not seen this form of turnip-cutting machine, it may be proper to give a short description of it here. A is the hopper into which the turnips intended to be sliced are put, the roots and tops of the turnips having been previously taken off. The inclination given to the bottom of the hopper keeps the turnips always close to the cutters. B is a circular disc of cast-iron, revolving on an axle and driven by a handle. It acts the double purpose of forming a plate, upon which the cutting knives are fixed, and of being a fly-wheel to maintain a steady motion. The knives are of two forms, one a long straight knife for cutting the turnips into broad slices, the others are short ones fastened into the disc at right angles to the long knife, and whose province it is to cut the broad slices into narrow strips. In the ordinary form of the disc, which is cast in the same plane, it is frequently observed that the cut turnips do not freely leave the knives. To obviate this inconvenience, the portion of the disc immediately posterior to the knives is somewhat bevelled or twisted, to afford room to the strips to fall down. They thus freely fall down upon the inclined board C, slip forward upon it, and drop into the troughs on the ground. We believe it was Mr. Slight who first introduced the bevelled form of the disc. The small knives can be removed, and then the machine is converted into a slicer of turnips for cattle. The two wheels give a steadiness to the machine when in use much superior to only one wheel. It may be worth mentioning that we have seen a model of a turnip-cutter very similar to this one, which was made by a wright in the parish of Merton, in Berwickshire, fully thirty years ago,—so slow is the

progress of the improvements in agriculture.—
EDITOR.

* “The economy effected by this simple machine, which costs but 6*l*. or 7*l*., has been stated to us by an authority which would at once be admitted as very high, to be no less than one-third of the whole produce. If it be taken, however, only at a fourth or fifth, why, it may be asked, has not every farm in the country been long since furnished with this cheap apparatus? If a contrivance were discovered in Manchester which should save one-fifth of the cotton consumed in a manufacture (were such a saving possible), not a year could pass before most of the old machinery would be replaced by the new, and such changes are constantly taking place there, at the expense of many thousand pounds; but the turnip is the raw material of the farmer's stock, and the farmer is of the same enterprising race with the manufacturer; why, then, but on account of the separated and secluded scene of his industry, is the spread of agricultural inventions so slow, the extension of those which concern manufacturers so rapid; and what, but a central connection of the cultivators of the soil, can diminish and remove the obstruction?”—(Vol. i., part 1., p. 16, *Journal of English Agricultural Society*.)

We are much indebted to Mr. James Ransome, an able and intelligent maker of Agricultural Implements at Ipswich, for much information, most kindly communicated to us, respecting the management of sheep when fed with cut turnips, as well as for informing us of the best sorts of machinery for cutting turnips. We have similar thanks to offer to Mr. Crosskill of Beverley.

this machine, a man and a stout lad are hired. The two are able every day to cut turnips that will suffice to feed about 300 sheep. It is the general practice to commence using these machines as early as Michaelmas; and on no account whatever to suffer the Swede turnip to be given in any other manner. Wooden troughs are also provided. Each of these is ten feet long and eight inches wide at bottom, and seven in depth. They are placed upon feet or blocks of wood five or six inches high, to raise them from off the ground. The greater number of these are employed to contain the sliced turnips. But as cut hay and straw, salt, and pounded oilcake are daily allowed, some of the troughs are required for these articles. The troughs that hold the salt, oilcake, and cut hay, ought to have a cover over them to protect them from the rain and snow. Very great attention must be paid by the shepherd daily to shift, at least four or five times, the troughs from the place on which they have been standing, to other places within the field. By this attention every part of the ground will be equally well trodden upon and manured by the flock.

In the eastern counties of England the white globe turnip is not so much approved of, and less of it is grown than formerly. The more hardy and nutritive varieties are preferred, as the Swede and yellow bullock turnips differ in the quantity of nutritive matters they afford, which is in proportion to the size of the roots, or according as their texture is solid or spongy; the largest roots containing proportionally the least quantity of nutrition; the middle sized the greatest. At one of the Farmers' Club meetings at Ashbocking, in November last (1839), a Norfolk white turnip was exhibited which measured three feet and one inch in circumference. When cut open, there was only one inch and a half of firm substance within the rind, the rest being unsubstantial as a sponge, thus shewing that size is not the only excellence to be sought in the growth of these plants. The Swede or *Ruta baga* is superior to all other varieties. It is seldom injured by the frost, a matter of the greatest consideration in our climate, where the severity of the winter has, during these some years past, been most destructive of the white globe turnip. Although the Swede may be less productive in some soils in the average weight of crop than the globe white turnip, it contains more nutritive matter, being as three to two, and so ought to be more extensively cultivated in Scotland.* There is scarce any

light, sandy, gravelly soil, where, under proper management, it might not be raised with advantage. An extra quantity of farm-yard manure added to bones, with a few cwt. per acre of pounded rape cake, the poor soils might be made to yield fair crops of this valuable root. On the light soils of Norfolk, it is now pretty generally the practice to plough down the oat stubble as soon as the crop is carried off the ground, and sow rye. In the spring, the sheep, particularly the ewe and lamb, are folded on the rye, as upon turnips. As soon as the sheep have gone all over the field, it is ploughed up, and prepared for sowing those roots. By this excellent management the poor soils, being thus heavily enriched with manure, are made to carry heavy crops of turnips. Were the Scotch farmer to follow in this respect the example of the Norfolk husbandman with his light soils, he would insure abundance of succulent food for his ewes and lambs, at a time he is under such difficulty often to provide it, and he would also, by the rich manuring of his land, look with greater certainty for more abundant root and grain crops. At Holkham, in Norfolk, the Earl of Leicester, the father of English agriculture, who had last year 500 acres of turnip and mangel-wurzel on his own farm, raises, in considerable quantities, the green-top yellow turnip. He procures the seed from Mr. Leslie, seedsman, Old Meldrum, Aberdeenshire. This variety Lord Leicester sows as late as the first week of July. As this sort of turnip strikes its root deep into ground, it is preserved from frost, and by keeping sound to a late period of the spring, it is found a valuable means of support for the ewe and lamb. Where wheat is grown, rape is much substituted for the white-globe turnip, which, being early eaten down by the sheep in the autumn, the land is ploughed, and grain is immediately sown.

To return to the operations in the turnip field: The white globe turnips, as being the most perishable, are first eaten. They are pulled up, the tops and leaves removed, and are laid into heaps of from thirty to forty bushels each. These heaps are so distributed over the field, as to answer the convenience of the shepherd, who, in shifting his folds from place to place, always finds a heap or so at the spot ready to be cut by the machine for

in the autumn weighed nearly 38 tons per acre, and, when cleared of tops and roots, upwards of 34 tons per acre; whilst, on the other part, prepared in the usual manner, it realized in gross only 28 tons, and, when cleared of roots and tops, 25 tons 14 cwt. Mr. Scougall observes—"the result will speak for itself." If the increase here stated be in reality the result of this mode of preparing the land, it will prove to be one of the greatest improvements made of late years in cultivation. The land is admitted to be fertile, but it is a stiff soil, and consequently more difficult to get into a suitable condition to produce a turnip-crop than the ordinary turnip-soils. Here, then, is a method, whereby the produce of soils, until lately considered to be almost incapable of producing a turnip-crop, may be made to produce one-third more weight in food, consequently supporting animals one-third more in number, and ultimately raising a proportionably increased quantity of corn."—*Q. J. Agric.* No. 48, p. 650.

This autumnal management of stiff, heavy, clay land, intended to be in turnips the succeeding summer, is well adapted to Ayrshire, and all the tracts of Scotland which rest upon the coal formation.

* "It was stated, not long since, at a meeting of the English Agricultural Society, in their rooms in Cavendish-square, in London, by Mr. Maxton, that he had grown forty tons per acre of Swedish turnips. He mainly ascribed the increased produce to preparing his land for the turnip crop immediately after harvest, and even sometimes before the crop was removed from the fields. The advantage resulting from this mode of preparation is remarkably confirmed by an experiment upon the home-farm of Sir George Grant Suttie, Bart., at Balgone, in East Lothain, explained by Mr. Scougall. He says—"the experiments consisted simply in having a part of the field, intended for turnips, prepared in November, 1838, and the whole operation completed in the same manner as if the seed had then been put into the ground." The remainder of the field was prepared at the usual time. Upon weighing a drill of equal length in both parts of the field, it was found that the gross weight in that part which had been prepared

his "woolly people." As, in the early part of the season, there is little apprehension of injury from frost, it is thought a sufficient precaution to cover these heaps with their own leaves. But, at a later period, before the frost sets in with severity, the heaps, which are then collected, are secured by covering them with straw and earth. This practice is known in most of the eastern parts of England by the term of "clamping." Before the fold is entered by the sheep, every turnip is pulled up and removed. The wooden troughs, in number sufficient to supply every sheep, are placed at suitable distances, within the sheep-fold, which is fenced in with nets, or bays, or hurdles. The man and boy, having already cut the turnips, these small slices are thrown into the troughs, and during the day, at different and stated intervals, they are replenished. At the same time, great care is taken to disturb, as little as possible, the sheep reposing and chewing their cud. It is of the greatest consequence in feeding every sort of animal, that set and stated times of the day be observed for giving them their food. When sheep have eaten enough, they will lie down and ruminate. On no account whatever ought they at such moments to be broken in upon and disturbed. Their improvement in condition will rapidly go on if they are left to carry on the process of digestion without any molestation.

In the troughs, as we have before stated, cut hay and straw, salt and pounded oil-cake, are placed; occasionally, as a change of diet, bruised oats or barley are given. Of the oil-cake, at the beginning of the season, half a pound in the day is considered ample allowance for each sheep; but this quantity is gradually increased to one pound. After the sheep have remained the number of days that is thought sufficient to manure and tread the soil, the fold is then shifted to another place, the turnips having been previously all taken up, and piled in heaps outside, ready to be cut by the machines.

With this brief description of the new method of feeding sheep folded on turnips, by the farmers of the county of Norfolk, Lincolnshire, and the Wolds of Yorkshire, let us now state the reasons they advance why this improvement in sheep husbandry should be adopted.

1. The first reason has already been delivered in a foregoing part of this paper, and has reference to the teeth of sheep; but as it is a matter of importance to the farmer, it may not be superfluous to repeat it. The pulling and tearing at the turnip loosens the two front cutting teeth of the hogs and old sheep to such an extent, that they are apt to fall out, and, in many cases, actually do so. In this deficient state of the mouth, it is impossible that the younger animals can eat a hard Swede turnip, and in such a quantity as quickly to fatten and be ready for the market. Indeed, if the turnips be not cut, many of the flock can scarcely exist, and, while in the midst of plenty, may be actually starving. The teeth of the more aged sheep, again, from a variety of accidents and diseases to which they are liable, and from having been also much worn down by the hardness of many plants on which they have subsisted, are often, before they are put on the turnips, in a very imperfect condition, which necessarily prevents them from rapidly taking on fat, when folded on turnips, according to the old way. The malformation, also, in the structure of the upper jaw of some varieties of sheep, known in Scotland by the name of *grim-mouthed*, is another reason to adopt the plan of feeding sheep, when

folded on turnips, with these roots cut into thin, narrow slices.

2. That the hogs and the older sheep, when placed on turnips, will feed much quicker and be kept in a more healthy condition, when these roots are cut with machines into small, narrow slices, which they can easily take into their mouths, and which are placed before them in long wooden troughs within the folds; that they will sooner fill themselves, lie down, and ruminate. It is certain that when less time is taken up in eating, the more speedily will the animal become fat; the quicker that flesh can be laid on, the greater economy will there be of food. By treating the young sheep or hogs in this way, at about a year old most of them may be sent from the turnip field to market fit for the butcher. This is a very great benefit to the farmer, not only enabling him to increase the number of his sheep, but also better to prepare his flocks for growing his grain crops.

3. That sheep, penned in a fold on turnips like all animals under confinement, require a variety of food in order to make them fat. The habits of the sheep, both in its wild and domestic state, require its food to be very varied. Linnæus observed that while cattle ate 276 species of plants offered to them, and refused 218; that sheep took 387 species, and rejected only 141. Magendie, a celebrated French physiologist, has shown by experiment that it is impossible an animal in a healthy state can exist longer than six weeks on one article of diet; death often takes place even before the end of that period.* Hence the necessity of supplying the sheep, when on turnips, with a variety of articles of food. On this principle, in the part of England before named, each sheep receives in the day half a pound of bruised oil-cake, and this quantity is gradually to be augmented to one pound, or even more. As much salt also is given them as they will lick, it being a useful seasoning to their food, and indispensable to the health of all graminivorous animals. Steamed potatoes might also be supplied to the feeding flock. And we are confident that, with a proportion of such steamed food daily supplied them, their fattening would be hastened. It has been found very advantageous, while the ewes are nursing their lambs, to feed them with their salted maltcombs, giving about one sack to every hundred of them.† Cut hay is mixed with the scalded maltcombs. In those seasons, when turnips are a deficient crop, this diet is found a good substitute for the roots. These maltcombs, thus prepared with other artificial food, brings on very fast those sheep that are put up to fatten. Cut hay and straw are liberally furnished them in the troughs. These last articles of food are held to be so indispensable for the animal's health that they must always be supplied. Pea straw, when it is to be had, is likewise given cut down, which sheep relish very much. Where there is a number of sheep to be fed, the hay and straw should always be cut by a machine driven either by a horse, or, where the farm admits of the thrashing machine going by water or by horse power, the machinery of either should be made to drive the hay cutting machine. And to these same thrashing machines, a turnip-slicing machine

* Blacklock's Treatise on Sheep.

† In the neighbourhood of Dublin early lamb is raised on a large scale for the supply of the Liverpool market. The lambs have a large allowance daily of cow's milk given them in addition to that which they receive from their dams.

ought to be attached, which would supply the cattle in the straw-yard, and those tied up in the stall, with cut turnips. It is found to be not only healthful for the animal, but far more economical as concerning the provender, not to fit up the stalls or cattle-feeding houses with racks, but to substitute in their place deep, wide mangers; these being filled with the chopped hay and straw, bruised grain, and sliced turnips, there can be no waste. It must have been observed by every one who examines the litter in stables and cattle-feeding houses, that there is much hay trodden under foot. When a rack is crammed with hay, the animal, generally before he begins to eat, pulls out a quantity of it, which, falling down on the ground, he selects from the mass which is most agreeable to his palate; the remainder being rejected, passes into the litter. No hay ought, therefore, ever on a farm to be put into the rack, but always to be cut by the machine into short lengths and placed before the animals in deep mangers. When cut hay with bruised oats (they ought always to be bruised) are put into the manger, the horse feeds with the least waste of provender to his owner, and having soon satisfied his hunger lies down and rests. That cut hay and straw are absolutely indispensable to sheep fed on turnips. These roots being of a succulent, laxative nature, when given to them without any hay, are apt to purge them severely and induce disease. We solicit the reader's attention to the following extract from "Sinclair's Hortus Woburnensis," a work on the "British Grasses," a publication of great practical value to the farmer. He shews in the clearest manner the necessity of supplying sheep with hay, when folded upon turnips.* It is necessary that plants having a bitter

* Sir A. Davy observes, "it appears probable that the bitter abstractive matters of the grasses, are very little nutritive; but probably they serve the purpose of preventing, to a certain extent, the fermentation of the other vegetable matters in the stomach, or in modifying or assisting the functions of digestion, and may thus be of considerable use in forming a constituent part of the food of cattle. A small quantity of bitter extract, and saline matter, is probably all that is needed; and beyond this quantity the soluble matters must be more nutritive, in proportion as they contain more albumen, sugar, and mucilage; and less nutritive in proportion as they contain other substances.

"To these, I may be permitted to add the results of a trial which I made on the *dung* of sheep, that had fed on turnips, as it may afford some information on the nature of turnips as food for sheep.

"1920 grains of the yellow Scotch Turnip, on which sheep were feeding, afforded of nutritive matter 85 grains, which consisted of,
Mucilage 9 grains.
Saccharine matter, or Sugar 73 ..
Bitter Extractive and Saline matters.... 3 ..

"1920 grains of the *dung* of the sheep which had fed on the yellow Scotch turnip, afforded of soluble matter, by means of a large quantity of water, 17 grains, which consisted of,
Animal Mucus and Mucilage..... 3 grains.
Bitter Extractive and Saline matters .. 14 ..

"The most remarkable circumstance here, is the superior quantity of bitter extractive in the *dung*, to that which is shewn to exist in the turnips; but the sheep had hay, on which they occasionally fed in the field, and on examining the insoluble portion of the *dung* (after separation from the soluble parts), nearly one-fourth part in weight consisted of the woody fibre

extractive principle should be supplied, to correct the purgative tendency of the turnip. The plants which compose hay abound in these qualities. With regard to the use of the bitter extract contained in hay, it may be laid down as a well authenticated fact, that it stimulates the stomach and promotes digestion. Turnips contain a large quantity of matter capable of affording nourishment to the body, but yield very little of the bitter principle. In consequence of this, sheep acquire fat rapidly for a time when placed on turnips without hay, but experiencing a want of medicinal bitter, begin with equal rapidity to lose the advantages they have gained. They may, for a few weeks, when on turnips, continue healthy, though no hay should be allowed them. But they will at last fall off. By, however, giving them good hay and plenty of it, they will not be long in recovering their condition.*

(To be concluded in our next.)

QUEEN MARY'S TREE.—This memorable tree, which has braved the blasts of centuries, yielded to the fury of the gale on Monday last. It stood at the east end of the village of Duddingstone, and nearly opposite Lord Abercorn's Park. It was, perhaps, one of the oldest thorn trees in Scotland, and of the greatest dimensions. Its exact measurement we do not at present recollect, but we know that two men, embracing its trunk at opposite sides, could not make their hands meet. It was commonly called Queen Mary's Tree, though it is probable that it was planted before her reign. It formerly stood within a park, but on widening the carriage road, it was brought outside about ten or twelve years ago, and then it seemed on its last legs, several fissures appearing in the trunk, through which the elements of air and water were fast consuming the venerable tree. The road trustees had these fissures filled up with stone and lime, and had it otherwise protected, but the violence of the gale on Monday pulled it up by the roots, laying it along a shattered and withered trunk; and thus another of the memorials of the unfortunate Mary has perished, and in the vicinity of her Holyrood.—*Aberdeen Banner*.

of hay, which evidently had afforded the extra quantity of bitter extractive to the dung.

"The sheep eat of the hay from choice, and not necessity, and it is more than probable that the bitter extractive principle it contained, was, under such circumstances, the most valuable part of its nutritive matter, in supplying the deficiency of it in the turnips.

"It is worthy of observation here, that the leaves, or herbage of the common pasture grasses, contain nearly the like proportion of bitter extract, as that in the dung; the sheep, therefore, in this instance, had taken that proportion of hay, which, combined with the turnips, formed a natural food, or that which had nutritive qualities analogous to natural pasture.

"The dry fibre of the hay or straw given with turnips, may also assist mechanically in correcting the watery, over succulent, laxative nature of the food, in the cold season of the year in which it is given to sheep, when an excess of moisture may be more hurtful than in a warmer season."—(*Sinclair's Hortus Woburnensis, or Treatise on British Grasses, p. 7.*)

* See Blacklock's Treatise on Sheep. It is a work of great merit, containing much valuable practical information on the treatment of sheep. No sheep farmer ought to be without it.

THE DUTY ON HOPS:

TO THE EDITOR OF THE WORCESTER JOURNAL.

SIR,—I think you will be rendering the hop planters an essential service if you will be kind enough to insert this letter in your paper, relative to different opinions held by hop planters respecting a high tax on hops, and a low one. There is about one in every hundred who thinks a high duty in hops will give a high price to the planter: I have made a comparison between the high price on hops obtained when the duty was a penny per lb., and when at the present high duty of two pence; I cannot give you the date when the alteration in the duty took place, but it was early in the French war, when blood money was wanted. I well remember however the time when a Mr. Waddington, a merchant from London, who had the command of a large capital, came to our Worcester market to buy hops, and the prices then were from 8*l.* to 10*l.* per cwt; but from the quantity of money he threw into the market, hops got up to 15*l.* per cwt. Mr. Waddington waited upon Mr. Pitt, then Chancellor of the Exchequer, and told him he might double the duty on hops, as they never would be under from 12*l.* to 15*l.* per cwt. Mr. Pitt took the gentle hint, and laid on this oppressive war tax to assist him with his ruinous war; but how were the predictions of Mr. Waddington verified? In no way beneficial to the planters, for hops in three years went down to 3*l.* per cwt. So much for Mr. Waddington's prediction to enable him to come down to crush the fair trader, and allow him to forestall the market, for which he in the end paid dearly. This completely floors the one planter out of every hundred who would not sign the petition to get the penny per lb. repealed. They say high duty makes high prices; when hops were from 8*l.* to 15*l.* per cwt., then the duty was one penny per lb.; and in three years after, when we paid two pence, hops were at 3*l.* per cwt.; and how is it that hops during the last six years have not averaged in our market more than 3*l.* 10*s.* per cwt. with this high duty? I think this fact makes the few planters' arguments fall to the ground, and the ninety-nine out of every hundred just persons who signed the petition are right, and that the war tax is an oppressive and an unjust tax paid out of capital. Our one planter in every hundred thinks the plantation too large for the consumption, which causes the low prices; but this I deny: the consumers of beer are increased four to one to what they were in 1808, and our plantations are not increased in the same proportion; the cause is obvious to any one: we have had seasons which have suited the growth of hops for many years, quite different from the average of seasons from 1800 to 1820, which were wet and not congenial to the plant, which gave us high prices. I do consider the price of all marketable commodities depends upon the supply and demand, and, above all, the quantity of money accessible to be got at to pay for them. The one great cause of the dearness of hops was, that bankers allowed the trade to draw to almost an unlimited extent in the hop season; now the screw is put on and no such facility given,—we depend upon speculators to invest their money in hops, and if hops are not at a moderate price then we lose that class of customers in the market, which makes the planters speculate upon their own growth. I think, Sir, I have shown you enough to convince any sane man that if a planter pays 100*l.* duty on hops instead of 50*l.*, he loses that sum for ever, as it never can return into his pocket in any way.

Your obedient servant,
A HOP PLANTER.

DUTY ON HOPS.

TO THE EDITOR OF THE MAIDSTONE GAZETTE.

SIR,—Having observed in your paper of last week, a paragraph in which it is advised to apply for a kind of *ad valorem* duty on hops, I think that course would be objectionable, as some machinery must be had to ascertain what is the average price of hops per year; and it would be thought that it exposed the real income of the farmer too much. I would venture to suggest that it would be far better to petition for a reduction of the duty altogether, or at least to the old duty of 9*s.* 4*d.*, for it appears plainly, that the duty is no protection to the Kentish grower against the Sussex grower, as the result of the last years have proved, for although the average price of Sussex hops has varied from 50*s.* to 70*s.* per cwt., yet the plantation has increased in Sussex, and diminished in Kent. Although the Sussex planters must have been losers, yet the duty, as formerly stated by some, has not caused them to desist from planting. I agree with your correspondent that the greater growers are not the most able or willing to pay the duty.

May 4, 1840.

A. Z.

ON THE APPLICATION OF THE MANURE OF COWS.

SIR,—Encouraged with the attention you always pay to matters relating to agriculture, I take the liberty of trespassing on the columns of your interesting Magazine, for information on the best mode of preparing and applying cow-dung as a top-dressing for grass land, hoping thereby that some friend to agriculture, who may be in possession of the required knowledge, may be induced to propagate that knowledge for the benefit of others.

In this neighbourhood many large stocks of dairy cows are kept, which are fed in-doors during winter, and consequently a great quantity of manure is made from them; considerably more than is required for green crops, there being but little of the land in cultivation. There is a general clearing out of this manure from the yards in the month of January; and that which is short enough for spreading is put immediately on the land; but when it is mixt with much straw it is thrown up into a heap lightly for further decomposition, and after lying in this state for a month or so, is applied to the grass.

And now comes the evil for which I want to find a remedy.

If the two following months, namely, March and April, should prove dry, as has been the case this year, there is very little benefit derived from this manure. It soon becomes so dried and hardened that it imparts no more benefit to the land than if so many chips were spread on its surface: and after once getting into this state, it requires an immense deal of rain to dissolve it. Showers have no effect at all on it. I have seen the globules of water remain perfect upon it for a length of time, without the least particle having been taken in, and the sun and wind ultimately dry them up. In fact the ground must have a thorough soaking before it has effect on this manure when once got into this hardened state. We know that when very well mixt into a compost with light earth, this tendency to harden is in a great measure overcome; but it is not always that we have this at command, and therefore I wish to know what other means may be employed to the same end.—Would a mixture of salt have that effect? If so, in what proportion should it be used?

An answer to this enquiry, through the Magazine, would be thankfully received by, Sir,

Your obedient servant,
A TENANT FARMER.

Bangor, near Wrexham, North Wales,
5th May, 1840.

ON THE FORMATION OF WOOL.

We quote from 'The African Colonizer' the following passages relating to the formation of wool, which will be read with interest just now when public attention is particularly directed to the process of felting woollen cloth.

Most animals have both wool and hair as their clothing, (1) but the preponderance of the one over the other differs materially in various animals, and may be altered by climate, and other influences. The sheep, in our portion of the globe, the llama of Chili, the yak of Tartary, the camel &c., are clad, almost exclusively, with wool. Abundance of wool is mixed with the hair of the deer; even the tiger and the seal are not destitute of it; and it abounds in the fur of the hare, the beaver, and the chinohilla and others; (2) but is always overlaid by the hair. From the earliest times, wool has been known to possess the property of felting, and felted cloth is of great antiquity. Pliny observes, that wool, of itself, if driven into a felt, without spinning or weaving, serves to make garments; and that if vinegar be used in the working, such felts are proof against the edge, or point of the sword, and are capable of arresting the progress of fire. (Lib. viii.) Mantles and counterpanes of felt were used at Rome. (3) Now, hair, however long or delicate it may be, does not possess the felting quality. In what, then, consists this property in the one, and to what is to be attributed its absence in the other? And here in justice, reference must be made to Mr. Youatt, (see his work on the 'sheep'), to whom the credit is due of demonstrating the true characters of wool, the principles of felting, and the difference between wool and hair.

Many are the theories upon which the philosophers have attempted to account for the felting of wool. The attraction of cohesion; the elasticity of the fibres, bent in every possible direction, and prevented from returning to their original length by the adhesion of other fibres; the property, which certain hairs and vegetable filaments have, of attaching themselves more and more to each other, in proportion as the fabric into which they are united, is beaten,—the fibres entangling each other in circlets, and, by their elasticity, striving to return to their original condition; these and modifications of similar theories, were accepted as a sufficient explanation. M. Monge was the first who ventured to assert that a feathered, or barbed edge, must be the structure of the surface of wool; that the surface is formed of lammellæ, or little plates, which cover each other from the root to the point, pretty much in the same manner as the scales of a fish cover that animal from head to tail, or like rows placed one over another, as is observed in the structure of horns.' On this theory the truth of which M. Monge assumes, he explains the mechanism of felting, as accurately as though he had seen the serrated edge of the wool. (4).

M. Monge, however, did not see the peculiarity in question, and it was reserved for Mr. Youatt to demonstrate it. (5) The true cause of the felting property of wool, and, at the same time, its distinguishing character, when contrasted with hair, consists, as ascertained by microscopical experiments, in its serrated structure externally. When viewed through a microscope of great power, and as a transparent object, the fibre of wool assumes a ribbon-like form, with serrated edges; but these serrations, when the fibre is viewed as an opaque object, are found to result from the presence of a

succession of inverted cones encircling a central stem, the apex of the superior cone being received into the cup-like base of the inferior one: and each cup-like cone has projecting and indental edges, directed from root to point. These conical, or cup-like circlets, are farther resolvable into distinct scales, or leaves, set regularly around the central stem, and varying in number, size, and degree of projection, in the wool of different animals. In some instances these scales are pointed, in others round. In the wool of the bat, these circlets are so decided as to produce the appearance of a series of cups placed one in another, and having indented edges. Though hair is covered with scales or rugosities, it has no serrations, or tooth-like projections; the hair of the tiger is covered with scales, like those on the back of a sole; while, in the wool of the same animal, the serrations are distinct and numerous, as they are, also, in the wool of the bear, and of the Italian wolf-dog. The human hair, as ascertained by Mr. Gill, is of a cylindrical form, and covered with scales, or rugosities, but without serrations. (6)

The engravings from Mr. Youatt's work serve to illustrate the microscopic characters here detailed, by which hair and wool are respectively distinguished.

The wool of the rabbit is fine, with sharp, angular serrations, to the number of 2880 in the inch, 'being 160 more than in the highly valuable and felting Saxon wool.' The fibre, however, has fewer curls. The hair varies from 1,250 to 1,300 part of an inch in diameter, and is covered with a scaly incrustation, but cannot be said to be serrated.

In the seal, the wool is abundant beneath the compact hairs, and is exceedingly fine, but the serrations are few, and far apart; the hair, having about nine times the diameter of the wool, is beautifully covered with scales, but there is not the vestige of a serration.

In the wool of the bear, which is very fine, the serrations were found to have a curious character; 'they resembled so many spires, projecting at irregular distances, and at an exceedingly acute angle.' In the Italian Wolf-dog (which has a considerable portion of short wool beneath the hair,) the serrations of the wool were found by Mr. Youatt to be 'superficial, and irregularly placed; some of them resembling small spines, and others looking like rounded prominences.' When viewed as an opaque object, the cup appeared to be 'composed of two, sometimes three, leaves, with rounded extremities.'

The wool and hair of the Tiger are then represented. The wool is beautifully fine; it is only the thousandth part of an inch in diameter; its serrations are likewise numerous, amounting to 2560 in the space of an inch. The hair is covered with scales, resembling those on the back of a sole, but with no serrations.

The differences, then, between wool and hair, according to Mr. Youatt, are as follow:—The fibre of wool is crisped, or curled, the curls increasing according to the fineness and felting property of the wool; and, in addition to this, it is decidedly serrated; whilst hair, though sometimes curled, but in a very limited degree, in comparison with wool has its edge only scaly, or rugose, and never truly serrated; and hence it is that hair though it will entangle and harle, to a certain extent, will not felt into a compact mass.

1. The blood-horse of England is destitute of any particle of wool; but the shaggy pony of the moun-

tains of Wales, or of the black Shetland Isles, is half clad with it.

2. "My opinion," says Mr. Plint, "is that, with few exceptions, the covering of quadrupeds is a mixture of hair and wool, varying greatly in their proportions to each other. Let us consider them in their native state: they are exposed to the vicissitudes of the seasons, and therefore need not covering at one time, to throw off the influence of the sun's rays, and, at another time, to retain the animal warmth, when the surrounding temperature would otherwise rapidly withdraw it. Hair and wool are bad conductors of caloric and admirably adapted for both purposes, and they exist in actual and relative quantity according to the altered situation and wants of the animal. Thus, in summer, the fleece of the Arctic Hare is thin, as I believe is that of the Argali; in winter, a fine wool fills up the interstices, between the hair, and protects the animal from the inclemency of the weather. Here is an admirable provision for the wants of animals generally; but we should stop short of the exact adaptation of the fleeces to these wants, if we did not remark how necessary it is that the wool so indispensable to the retention of the warmth of the animal should be protected by a coat of long smooth hair. Just imagine the Argali, or the Hare; or, to instance animals of the carnivorous genus, the Sable, or Polecat, clothed with wool only, and what a miserable plight the poor animal would soon be in! The fleece would prove a constant impediment to its movements among underwood, if indeed it were not entirely stripped off the back of the animal." See Youatt on the "Sheep," p. 57; published by the Society for the Diffusion of Useful Knowledge.

Strong and thick felted covering, dyed with a pattern of various colours, has been found on the body of a mummy from Thebes.

4. "The workman," he says, "presses the mass with his hands, moving them backward and forward, in various directions; this pressure brings the hairs against each other, and multiplies their points of contact. The agitation gives to each hair a progressive motion towards the root; but the roots are disposed in different directions, in every direction; and the lamellæ of one hair will fix themselves on those of another hair, which happens to be directed a contrary way, and the hairs become twisted together, and the mass assumes that compact form which it was the object of the workman to produce. In proportion as the mass becomes compact, the pressure of the hand must be increased, not only to make it closer, but also to keep up the progressive motion and twisting of the hairs, which then take place with greater difficulty." Thus near did M. Monge arrive at the truth.

5. Mr. Youatt thus announces his discovery: "On the evening of the 7th of February, 1835, Mr. Thomas Plint, woollen manufacturer, resident at Leeds; Mr. Symonds, clothing agent, of Cateaton-street, London; Mr. T. Millington, surgeon, of London; an esteemed friend, Mr. E. Brady, veterinary surgeon, at that time assisting the author in his practice; Mr. W. H. Coates, of Leeds, veterinary pupil; M. Powell, the maker of the microscope; and the author himself, were assembled in the parlour. A fibre was taken from a Merino fleece, without selection, and placed on the frame, to be examined as a transparent object. A power of 300 (linear) was used; and, after Mr. Powell, Mr. Plint had the first ocular demonstration of the irregularities in the surface of the wool, the palpable proof of the cause of the most valuable of its properties, its disposition to felt. The fibre thus looked at, assumed a flattened, ribbon-like

form. It was of a pearly-grey colour, with faint lines across it. The edges were evidently hooked, or, more properly, serrated;—they resembled the teeth of a fine saw. These were somewhat irregular in different parts of the field in view, both as to size and to number. The area of the field was one-fortieth of an inch in diameter. By means of a micrometer, we divided this into four, and we then counted the number of serrations in each division. Three of us counted all four divisions; for there was a difference in some of them. The number was set down privately, and it was found that we had all estimated it at 15 in each division. Having multiplied this by four, to obtain the whole field, and that by forty, the proportionate part of an inch of which the field consisted, we obtained, as a result, that there were 2,400 serrations in the space of an inch, all of which projected in the same direction; viz., from the root to the point." The diameter of the fibre was ascertained to be 1-750th of an inch.

"We next endeavoured to explore the cause of this serrated appearance, and the nature of the irregularities on the surface, which might possibly account for the production of these tooth-like projections; we therefore took another fibre, and mounted it as an opaque object." After some difficulty, at length Mr. Powell succeeded; and we were presented with a beautiful glittering column with lines of division across it, in number and distance seemingly corresponding with the serrations that we had observed in the other fibre, that had been viewed as a transparent object. It was not at once that the eye could adapt itself to the brilliancy of the object; but by degrees, these divisions developed themselves, and could be accurately traced. They are not so marked as the inverted cones which the Bat's wool presented, but they were distinct enough; and the apex of the superior one, yet comparatively little diminished in bulk, was received in the excavated base of the one immediately beneath; while the edge of this base, formed into a cup-like shape, projected, and had a serrated, or indented edge, bearing no indistinct resemblance to the ancient crown. All these projecting edges pointed in a direction from root to point.

6. Dr. Goring (see *Brande's Quart. Journal*, 1826, p. 433) describes the appearance of the hair of the human head, beneath the lens of a microscope, as being "indented with teeth, somewhat resembling those of a coarse round rasp, but extremely irregular and rugged; these all incline in one direction like those of a common file; viz., from the origin of the hair towards its extremity." "It is singular," says Mr. Youatt, "that although nine years have passed and the microscope has been considerably improved, since Dr. Goring observed this structure of the hair, and almost every one, who possessed an instrument of much power, has been eager to gaze on this new discovery, no person has been so fortunate as to detect a single serration on its edge." A truly serrated surface is, according to Mr. Youatt, the character of wool only.

Labour well applied is always productive of some profit, and these who spare it act on a false principle of economy; but the best and most judicious method of employing labour and time is the most important of all subjects to the real economist. Many persons learn this method from long experience, and it is true that the tact and coup d'œil thus acquired is peculiarly accurate. But it may be acquired much more promptly and definitely, by the observation of cer-

tain principles from which a theory of action may be deduced without serving a tedious and expensive apprenticeship to experience.

It is far more difficult to apply labour judiciously to agriculture than to manufactures. For the labour which is required for some particular kinds of produce, lasts but a very short time, and is then suspended for a much longer period, during which the farmer depends upon the operation of nature to bring the produce to perfection, and awaits the proper season for gathering it in. After each species of grain has been sown it requires very little, or no attention for some time : whereas in the formation of any kind of fabric, the labour must be continued from the very commencement until the completion of it. In order therefore, that the farmer may make the very best possible use of the force which he has at his command, he should endeavour to arrange the succession of his crops in such a manner that every hour should be devoted to some preparatory and necessary operation. It is also necessary that he should select the produce so as never to have more operations in hand at once than he can accomplish by means of the force which he has at his disposal, or, which is within his reach.—*Von Thaër*.

ON MARL.

Marl, (*mergel*, Dut., *mery*, Sax., *marga*, Lat., from *marceo*, *quod est terra marcida*, *putris et solubilis*, or *μυρον*, *unguentum*, ointment, or drop, and *γῆς*, earth, *quod est unguentum terra, vel ex, μαργαρον*, *quod splendat*, or from *marg*, Ger., *medulla*, an *adeps* or preparation, or fat marrow, *dimin* : *margula*), is a fat, unctuous substance, composed of clay and chalk mixed together in a peculiar state of combination, and forms a calcareous earth, or carbonate of lime. In geology, marl is found in the tertiary formation, resting upon the gypsums, and alternating with it : one bed is white and calcareous, and contains silicified trunks of trees, and several species of plants and fresh-water shells ; the other beds are argillaceous, and of great thickness, and sometimes contain balls of celestine or sulphate of strontites ; thick beds succeed, the uppermost of which contain great quantities of oysters. Marls lie in the second and third beds of this formation, and the former is called a fresh-water formation from its containing few other petrifications than those of fresh-water, and land animals ; the latter concretion joins with the sands and sandstones, and contains marine shells. The fourth and last bed of the formation is a very large one of the fresh-water denomination.

In the natural history arrangement of minerals, marl forms the eleventh sub-species of "limestone," or rhomboidal calcareous spar, which is the second species of the genus "limestone," and the sixth of the order "haloide," which is the first of the second class of the arrangement, having no peculiar sensible taste, no metallic lustre, streak not changed in colour, and the sp. gr. above 1.8. It is divided into two kinds, earthy marl and indurated marl. The latter, or *marga schistosa*, not crumbling in the air, is sometimes spotted reddish or brownish in the rents, and marked with dendritic delineations ; but most commonly smoky-grey, bluish and yellowish grey, in colour ; and much resembles compact limestone ; occurs massive in angular or vesicular pieces, and in flattened balls, and contain animal and vegetable impressions, internally and externally dull and only

glimmering with foreign parts, which may be owing to the presence of particles of sand and mica ; fracture earthy, and passing into splintery, uneven and conchoidal, mostly thick and straight, slaty texture, generally slaty where there is little clay, and not crumbling in the air, fragments angular, blunt, tabular, discoid, laminar and slaty, opaque, yields to the nail ; streak greyish white ; feels meagre, is easily frangible, and rather brittle ; it effervesces briskly with acids, intumesces before the blow pipe, and melts into a greenish black slag : it contains

Carbonate of lime	50
Silica	12
Alumina	32
Iron and oxide of manganese	2
Loss	4

100

Sp. gr. 2.365 : 2.550 : 2.300 : and 2.700.

It occurs in the coal formations, in the new formations that rest on chalk, and in the secondary flint limestones, and also in the flint trap, though not fully understood, and often contains iron pyrites and garnets ; it is found stratified in various parts of the continent of Europe, and is met with in England and in Scotland, in the coal formations, and in the secondary formations that rest on the chalk, in the south of England.

In marls, where the calcareous earth predominates, the substance is called "calcareous marl ;" where aluminous earth is most abundant, it is called "clay marl ;" and "ferruginous" where there is a considerable mixture of the oxide of iron. The latter kind forms "septaria," or "ludi helmontii," found in curious spheroidal concretions that vary from a few inches to a foot and a half in diameter, and are mostly disposed in a regular manner in beds of marl ; when broken in a longitudinal direction, we observe the interior of the mass presenting to view a number of fissures, by which it is divided into more or less regular prisms, of from three to six or more sides, the fissures being often empty, but more generally filled with granular limestone in a crystallized state. This singular production is attributed to the effects of contraction, arising from exsiccation ; but a great difficulty lies in accounting for the uniformity of the fissures, their being confined to the interior of the balls, and their containing substances most likely to be injected externally or from without. These marly balls, or "septaria," abound on the continent, and in the Isle of Sheppey, in Kent, they are very numerous and large, and contain heavy globular spar, with diverging fibrous concretions. They also occur in Derbyshire, and are of a bluish grey colour ; and also in Durham, where the fissures separating the prisms are filled with quartz, and the quartz "septa," freed from the marl, represent the figure of a honeycomb. From these "septaria," that invaluable material for buildings under water, called "Parker's cement," is manufactured.

A variety of indurated marl forms a very beautiful stone called "Florence, or ruin marble," often reckoned a compact limestone. It is called "ruin marble," from the ferruginous infiltrations in the fissures of the substances presenting a number of varied colours when viewed at a distance, resembling the ruins of walls, castles, and bastions, with a representation of landscape perspective. A nearer approach dispels the illusion, which arises from a number of irregular spots, superficial or penetrating the mass. It is very dull in fracture,

and argillaceous in composition, and consequently never used in architecture, but is merely sawn into slabs. Some kinds of it exhibit groups of trees and shrubs, and beautiful arborescent delineations, from an arrangement of black "dendrites," and hence called "landscape marble," and a fine variety is found near Bristol in large oblong pieces, and called "Cottam marble," representing shrubs, trees, and grottos, from blackish brown spots and veins arranged in a dendritic form.

Goodes of marl are found in Italy, and in the south of France, and mostly owe their composition to the destruction of a nucleus originally lodged in the centre; they are either empty or drused over with crystals, mostly of quartz or calcareous spar.

The name of "ludi helmuntii" is also given to those imitative figures or forms frequently assumed by solid pieces of indurated marl, which have got the names of priapolites and zingebrites, or ginger stones.

Bituminous marl slate, "*marga bituminosa*," is allied to marl, being a carbonate of lime united with iron, bitumen, and alumina. It is of a brownish black colour, occurs massive, shines and glistens, slaty and greasy, streak shining and resinous, opaque, soft, meagre, sectile, and frangible; sp. gr. 2.631, to 2.690. It occurs on the continent of Europe, and in the Cordilleras of South America, in fletz limestone, and contains minerals, as copper ore, pyrites, and glance; also blue, green, and native copper; and contains impressions of fishes and plants. It is not found in Britain. It burns before the blow pipe, with a thick dross. The varieties rich in copper ore are wrought as ores of the metal, and bituminous marl slate when decomposed in the air forms an earth highly injurious to vegetation. In this slate remains of fishes have been found converted into coal, in very contorted and convulsed forms, indicating the sudden catastrophe of their destruction, their substance being almost wholly converted into copper pyrites, by some thought to have been the cause of their death, as their number in the slate is generally proportionate to the quantity of copper it contains. In a hard schistose marl, in that great natural curiosity, Monte Bolca, near Verona, in Italy, there have been recognized 105 different species of fishes, belonging partly to all the different seas known, and to fresh water lakes and rivers. This slate passes into indurated marl, and into stinkstone.

Aluminous and calcareous marls are used for the purposes of mortar, and in pottery, and in smelting iron, but the principal use is in agriculture.

Earthy marl, or "*marga terrea*," is of a whitish colour, or yellowish grey, or yellowish white, and sometimes smoke grey, these are the colours when dry; when moist in its bed it is generally blackish brown or brownish black. Some varieties are generally of a brown colour, and emit a urinous smell, and by some considered an earthy stinkstone. The colours are usually lighter than of indurated marl. It consists of dusty particles, dull, loose, or feebly cohering; feels fine, rough, or meagre; soils slightly, and is light; mixed with mica, gypsum, or sand, and with the latter fusible into glass; sometimes contains iron, but very rarely other metals; contains 60 to 80 per cent. of mild carbonate of lime, remainder of alumina, bitumen, and silica; sp. gr. 1.6 to 2.4. It effervesces strongly with acids, and when dry gives out a strong urinous smell, but loses that quality by exposure. It occurs in strata, and in beds in the fletz gypsum, and limestone formations, and

along with stinkstone, and in sandstones, and often immediately under the vegetable earth, and abounds in many places of the continent of Europe.

The two kinds of marl pass into each other, the earthy being considered to be produced by the decomposition of the latter, but the two kinds do not always accompany each other. The component parts of marl are so minutely divided as to be invisible to the naked eye; from this circumstance, and from their containing both fresh and salt water organic remains, and from the fossil structure, it has been conjectured that they have been produced from the detritus of other substances, and that they have subsided from a liquid state. This supposition is strengthened by the circumstance of the substances occurring in the fletz or secondary strata. They are soft, opaque, earthy, light, and miscible with water by agitation, soluble in acids with effervescence, harden in the fire, and vitrify in a strong heat; and to constitute true marls the substances must contain as much clay as to fall into a powder in water, and crumble into minute particles by exposure to the air, generally showing a hoary congelation to the rays of the sun. The quantity of calcareous matter varies from two-thirds to four-fifths, which may be separated by most of the acids, which will wholly dissolve the substance and leave a residue of clay, which is composed as usual of alumina and silica. Porous marl, or "*marga porosa*," is found in various parts of Britain and on the continent; whitish or grey coloured, indurated, porous, and breaking into indeterminate fragments. It becomes reddish when burnt according to the quantity of oxyde of iron it contains, and occurs mostly at the bottom of waters that are or have been stagnant.

Marls, in agriculture, are divided into stony, sandy, clayey and shelly, according to the appearances it assumes in different situations where it is found at various depths under the ground. The first kind is called "rotten limestone," and is thought to owe its hardness and slaty or laminated texture to the presence of sand along with the calcareous and argillaceous ingredients. It is slow in operation, but lasting, and very favourable for the production of grass after a long period of time. "Sandy marl" is most frequent in Ireland, in pits of limestone gravel, and is called limestone sand. The colour is brown, blue, or black, sometimes like lead; contains more sand than clay, and consequently not unctuous, and does not adhere to the tongue, feels gritty and slowly crumbles and moulders down when exposed to the air. It does not much effervesce with acids, as the sand amounts to about 75 per cent. and consequently chalk and sand predominate; but on clayey stiff soils it has much improved the texture of the land when liberally applied. "Clayey marl" is found of different colours, yellow, blue, red and brown, occasioned by the substances to which it has been exposed, and by the subjacent and superincumbent formations—as much as 60 to 80 per cent. of clay being found with 8 to 10 of silica, and the remainder being carbonate of lime with signs of iron. It contains more clay than other marls, and consequently possesses a greater power of absorbing and retaining moisture—has a soft unctuous feel, and in the original moist state is flexible like a paste, but dries and crumbles on exposure; its effects on all light and thin soils, sands, gravels and loams, are very great, as the portion of clay adds to the bulk and consolidation, and also benefits the land by moisture. "Shelly marl" is generally

found in places that have been covered with water, and is supposed to have originated from testaceous animals, being composed of shells connected into calcareous earth, more or less refined and pure, according to the attrition and decomposition they have undergone during a long period of time, and according to the quantity and quality of the substances mixed with them by the decomposition of earthy and muddy matters left by the sediment of the waters. This kind of marl contains more calcareous matters than the others, generally more than ordinary limestone. Most marls effervesce in acids when fresh; after burning the ebullition ceases. But several varieties are used that show no affection by acids, and are found to be great improvers of land, and have been long celebrated as manures. Clay marl effervesces feebly and hardens in the soil, while the more calcareous sorts dissolve into powder, and all the marls are easily vitrified and crumble by exposure according to the solidity of texture, and when burnt, by the attraction of moisture, and feel greasy when they contain particles of mica. Marls are generally found in a moist state, especially the argillaceous sort, and crumble by exposure, which property distinguishes them from lime which is not altered; after calcination, lime falls into a powder by the action of air and water, but burnt marl suffers no change, and marls exposed for years retain the same properties as when newly dug.

Ancient records inform us that marls have been very early and extensively used in Britain, and they are yet applied in some places, though in a great degree superseded by the use of lime, which is rendered by burning much lighter and more convenient of carriage, while the crude and heavy state of marl, and the great quantity required for an effectual application, confine it to the localities where it is found. For the sake of conciseness in practical purposes, marls may be divided into two kinds—shelly and earthy—minute accuracy will make many subdivisions, but these two classes will contain the different kinds in sufficient distinction according as the marls contain more earth or lime in their composition.

Shell marl is generally found under mosses, and in the bottom of lakes, soft and of a bluish white colour, and seems to be a natural deposit where water has been stagnant. The deposition usually partakes of the nature of the surrounding earths, and may properly be considered a compost of organic matters with earths and calcareous materials reduced without the action of fire, and for this reason it would seem to constitute a manure of superior quality. It often occurs in ponds and in land-locked bogs, on the sides of hills and on the banks of rivers, formed by the accumulation and decomposition of wilks and periwinkles, and also of bivalves, lying in beds of different thickness, running horizontally but seldom of great extent. In Ireland, it lies sometimes within two or three feet of the surface in low bogs, and in other places at a depth of seven to nine feet. To reach the true marls, several strata are pierced, as turfy earth, gravel, moss and fossil wood scittle by the spade, and a vegetable stratum of leaves, seeds and berries; then clay with shells used as marl, and then the true marls in beds of four or more feet in thickness, and often contains horns of deer. Marls, from below mosses, have been found to contain as much as 84 per cent. of pure lime, which is more than

is found in the purest limestones; in other trials shell marl was found to contain

Lime.....	41.25
Carbonic acid.....	32.
Silica.....	14.
Argil	4.
Oxide of iron.....	2.05
Inflammable matter.....	2.
Loss	4.70

100.00

In such situations, the depth at which the marl is found prevents much use of it, and the weight of the substance and the quantity required, renders the carriage always very expensive.

Clay marls are found under mosses and in low wet places, at the foot of hills and in the valleys between them. The composition and quality varies much, from 15 to 40 per cent. of calcareous matter is stated as an average, and the remainder of clay and sand; but there are often found mixtures of sand, loam, clay and chalk, in different quantities, according to the animal, vegetable and earthy matters which abound in the locality, and which have been collected and decomposed together. Separate and distinct beds of clayey and sandy marls have been found alternating with clays and limestone, of which clay is the undermost stratum; the marl being of very different colours as it has been exposed to the elements composing and surrounding it, the redness showing the presence of iron, whiteness that of calx, the blue and yellow marking the clayey composition mixed with other substances. It is sometimes found very hard to dig, with lumps of chalk and limestone in it, lying under stiff clays and low black grounds, and very compact and greasy, and of great value as a manure on sandy lands; it is also found breaking into lumps like dice, or flakes like lead ore of a reddish colour, and smooth on the surface, quickly crumbles and of good quality. Other kinds are found so soft and unctuous as to be delved and cut out by the spade; and slate or flag marl of a bluish colour usually found on the sides of hills and rivers, is found to be very good and lasting, and it very easily dissolves and falls down, very readily by the action of rains and frosts. A mixed marl has been found to contain—

Fine sand.....	36
Clay of a soapy kind.....	44
Mould.....	5
Carbonate of lime.....	14
Gypsum.....	1

100

The mixture of the particles of the different ingredients found in earthy marls, is so minute and fine, that not only the eye, but the microscope, fails to discover the constituents of any of the substances, and chemical analysis only is able to separate and detect them. Mixtures of clays and lime in alternate layers have been recommended and employed to produce an artificial marl; but the properties are wanting, and the true character of marls, that of crumbling by exposure, for all calcareous earths are not marls. We are totally ignorant of the natural process of composition, and we may very justly suppose that that composition consists in parts and qualities unknown to us, and which we cannot imitate. The operations of art fail when brought into competition with the modes of working adopted by Nature—the combination and resolution of rocks,

stones and earths into each other, which goes on incessantly, not to mention the changes of the animal and vegetable worlds, have never been approximated in the most distant degree by the labours of man; mortars and cements are a resolution and combination of a kind; but though the original constituents be known, and though they be again applied in the same proportion, we cannot produce the original substance—for with powdered lime, water, and carbonic acid, and the other ingredients in the due proportions, the limestone will not be composed by any means that we can adopt.

Marls much abound in the county of Norfolk, and a kind is found called "dove marl," like pigeons' dung, and of very excellent quality. The chalk marls of that county contain about,

85 grs. of chalk.
10 of sand.
5 of clay.

100

It breaks readily in the air, and incorporates easily the soil—falls in water but is not dissolved in it, and burns to lime with fire, and loses more than one-third of its weight and is used as chalk limes for manure and in building. The clayey marl contains—

clay 50 grs. with some iron.
43 of impure chalk.
7 of sand and granular fragments.

100

The proportion of clay shows the utility of this marl for light soils. The chalks of that county are also very pure, containing 98 per cent. of pure lime.

The marls are reckoned good when they feel greasy and become friable when dry, and the land above them is of good quality, and red, blue and yellow veins are reckoned the best colours. Marls contain no alkaline salt, as they impart no quality, smell, or taste when digested and boiled in water, and have nothing soluble in that element.

Clay has been found of a soapy nature, and is often mistaken for marl; but it has proved hurtful to vegetation from containing sulphur and other mineral substances; and in such cases, a chemical examination of it is necessary before application. Marls are known by crumbling into small pieces by exposure, by the particle of dry marl crackling in the fire like salt, and by throwing up bubbles to the surface of the water in which it is covered, and by gradually dissolving and forming with the water a soapy substance like a paste, and not unfrequently of a liquid nature, the marl remaining dissolved and suspended in the water without any coagulation. But water alone will produce bubbles when poured on certain dry clays, and it is hence recommended to subject marls to water for a time before being tested by an acid. A more correct method of distinguishing marls has been mentioned in banishing the fixed air from a certain quantity of the substance by applying muriatic acid till the effervescence ceases; the loss of weight shows the quantity of air expelled, and the remainder is earth. The quantity of calcareous matter may be ascertained by dissolving the marl in muriatic acid, diluting the liquor with water, passing it through a filtering paper, and then precipitating the calcareous earth from the clear liquid by a solution of some fixed alkaline salt.

Marls much abound in the eastern and western

counties in England and in many parts of Scotland; where the beds are shallow and the presence of it suspected, time and accident, or intentional search, have discovered the substances; where it lies deeper, the boring rod is the surest guide, the supposed indication of its existence by the growth of "*Tussilago farfara*" being about equal in weight with the notion that plants of the "*Chrysanthemum segetum*," show that land requires marling to extirpate the plant, and that "*Triticum repens*" is considerably checked by an application of that fossil. Pits are opened with a sloping entrance on the farms and localities where marl is found, which is dug and conveyed by carts to the lands where it is intended to be applied. The quantity used on an acre of land varies from 10 to 100 loads of two and three-horse carts of 30 to 40 bushels each, and from 40 to 60 loads may be taken as an average application, and often adds an inch to the staple of the soil—the quality of the land, and of the marl, and the expense of the article will have the usual relative influence, and the expense will also vary according to circumstances from 2*l.* to 6*l.* an acre. It is applied on land after tares for wheat, and in a clear fallow, and as a preparation for barley and turnips, where the shallow furrow of the last ploughing is very suitable for covering the marl. A better application is recommended on clover leys intended for wheat, where a period of six months before the land is ploughed, will be of great service in crumbling the marl by the alternations of frosts and thaws, and for securing an even and level distribution over the surface.

An objection arises to this method that the marl has not had sufficient time to fasten upon, and adhere to the ley; it lies loose, and is thrown to the bottom of the furrow, without a chance of exerting any influence from not being mixed and incorporated with the soil. In the application to barley and turnip lands, this objection does not happen as it will be blended with the pulverized soil, by ploughing and harrowing; but there is not a sufficient time to dissolve the marl for mixing, unless it be dry and exposed and turned over in heaps previous to the application, which will add to the expense of the manure. A more effectual and more economical method is used, by laying it on grass lands in autumn, and during the first months of winter when the grass is of little value, and when the changes of weather will effect the decomposition of the marl by the time the grass shoots up in the spring. It will thus ensure a regular distribution over the surface; and the bush harrow and the roll being afterwards applied, the particles will be well reduced and pressed to the roots of the plants. The crop of grass will be greatly improved, and when the land is ploughed for oats in the following spring, the marl will be thoroughly matted with the flag, and the grassy sward thus raised will much promote by its decomposition the subsequent fertility of the land. This mode is preferable in affording time for the crumbling of the marl; the application to turnips and barley in the spring admits of finer blending, provided the reduction of the substance can be accomplished, which may be done by exposure on the land probably between the two last ploughings, if favourable weather happen, and where the composition of the marl itself favours the speedy dissolution. This result may be much assisted in the spreading, and by going over the work with mallets and breaking the lumps, in the same manner as chalk. In whatever way it may be applied,

it is indispensably necessary that marl be reduced as fine as possible, by spreading and breaking the lumps, by rolling and harrowing when dried after rain, and ultimately ploughed into the land with a shallow furrow, and will thus be intimately mixed with the soil by the future operations. Some marls crumble to powder immediately on exposure, or very soon after; others will require the vicissitudes both of the summer and winter seasons, and also some attention in assisting the action of the weather by breaking, harrowing and rolling.

Marl being a carbonate of lime in a peculiar state of composition, produces effects similar to that substance, but requires to be applied in much greater quantity. Though it is a rich manure, it contains no salts, and is supposed to contain a portion of oleaginous matter, and to be an absorbent earth composed of clay and limestone. The chemist refers the whole benefit to the action of his favourite calcareous earth operating as a stimulant, and that the value of marls is in a direct ratio to the quantity contained; but marls are found with little or no calcareous earth in their composition, and when applied in equal quantities, they have produced similar results. The chemical agriculturist adopts the action of calcareous matter, and joins the bulk or addition which the soil receives by the application of the substance, and to the change it creates in the texture and quality of the soil, by mixture and mechanical action, from the mucilaginous nature it contains derived from animal exuvæ. And they are finally driven to the very reasonable conclusion, very useful at all times, ever at command and always available, that the benefits may be produced by the joint action of these supposed modes of operation. If the component parts of any marl, the clay, sand and calx, and the other ingredients, were spread on land in the definite proportions, separately or mixed by any process we may adopt, and multiplied by the quantity usually applied on a given extent of ground, the effects derived from true marls would not be produced, and on such points, Nature laughs to scorn our attempts and speculations. The extremely minute blending of the ingredients of marl has been supposed to constitute the fertilizing quality, each particle having the power of exerting its peculiar property on the soil and on each other, and of retaining or giving out the substances they may form that are favourable to vegetation by the different agencies and combinations. The clay imparts moisture to the sandy parts, and the sand prevents the clay from being too adhesive, and thus the respective qualities are exerted advantageously on each other. An oleaginous nature has been discovered in the composition, arising from the mixture of the substances, and of animal and vegetable matter, and to this property much of the fertility of marl has been attributed. Marls are supposed to be derived from the ruins of the primary and secondary rocks, worn down and carried about, agitated and deposited without any relation to the laws of specific gravity; animal remains are found at considerable depths, and even stones of great weight are met with, where no rocks of the same, or of a similar kind, are known to exist in the surrounding locality, or in the adjacent geological formations. Fire wholly changes the nature of bodies subjected to the violent effects of its influence, and gives them qualities they did not before possess, and banishes others, which they never afterwards recover. Decomposed lavas are exceedingly

fruitful and the heat of volcanoes produces the most luxuriant vegetation in places within its reach, and it has been fancifully conjectured that marl may retain some of the qualities which its constituent substances acquired as rocks by the igneous agency of their production. Such conjectures amuse the speculative, and interest the curious, but convey no information on the quality of marls or its effects when applied on different soils; on these points we must turn to experience, the true science of the art.

On all heathy lands that have been broken up for improvement, the effects of marl have been great, and on sandy lands generally, and on sandy loams, the applications have been very beneficial, while on raw and damp loams, reports have been less favourable, from the marls attracting moisture, and thus increasing the poachy looseness of the soil. Clays are also much improved by marls when applied in large quantities, but the due effect supposes a somewhat similar pulverization of the clayey mass in order to facilitate the fertilizing mixture of the substances, an assimilation not easily, or rather incapable of being produced on tenacious and hardened clays. Practice has directed the application of marls on all light soils, and the use of sandy and shelly marls on heavier lands, but all these substances have been found useful on any soils when judiciously employed. The hurtful effects of marls have been occasioned by an avaricious use of the plough, and to the frequent sowing of corn crops, and the evil has been completely remedied by the adoption of the alternate system of farming. The effervescence of calcareous bodies with acids, shows the presence of the substance but not the quantity; the ebullition will vary according to the strength of the acid, and the compactness, penetrability and other latent qualities of the calcareous bodies themselves. It may be more advantageous to apply marls gradually and at different times, than in very large doses, which in some particular soils might produce too much looseness, and prove hurtful. Marls are often made into composts with earth and with dung, either in layers in the heaps, or in bottoming the fold-yards, when it will be soaked with the juice from the yards, and afterwards mixed with the mass. It has been thought that such a preparation has produced effects when marls have failed; but very probably a supposition has usurped the place of a just and rational conclusion. Rules that have become general from received and very often false opinions, have deterred many persons from using marl, as being hurtful in a great or small quantity, and from land that was once marled not bearing a repetition till after a certain number of years had elapsed, from increasing the dampness of clammy loams, and the openness of light lands, and in some cases producing no effects at all. On coarse heathy pasture, an application of marl produces the usual effect of calcareous matters by banishing the rough foggage, and substituting a close sward of finer grasses.

This result will be obtained from the application of many other substances as well as from the calcareous, provided they be properly prepared for the purpose intended, and applied in sufficient quantity, and the subsequent treatment on arable lands be judicious and well timed. On light soils that are newly broken up for tillage, marl has had and will have great effect, as the land will contain a quantity less or more of vegetable matter; the subsequent benefits will depend on the mode of management that is adopted, if it be scourging or

improving. The desire and need of immediate gain has produced the effects complained of as having followed from the use of marl, which is now restricted in many places by positive agreement.

In all such cases one thing must never escape the memory of the farmer, that land must be fed with animal and vegetable matters by every possible means; and in the case of light lands, that constant or too frequent cropping with cereal plants will infallibly exhaust them; and that they require the constant aid of the green crops being consumed upon them, or of a consolidation produced by remaining a time in pasture, and the consequent result of a sward of grasses and roots to produce vegetable mould by subsequent decomposition. There is no certainty of any substance properly called a manure having proved hurtful in itself; even in the case of being neutral, or producing neither benefit nor detriment, the just inference may be, that the fault lies in the preparation of the land and of the substance itself; and these causes joined with the circumstances of application, may not afford an opportunity of yielding the influence that might be expected from their active combination. Frequent marling of land will not prove hurtful more than other applications, if guided by the prudent maxims of reason and experience.

A marl has been found in the West of England of a red shining clay colour, which has proved very injurious to heavy lands, and the use of it is now interdicted. In Norfolk marls are found, and are easy of access, and have produced very great and permanent results; it has been described of a hard, dry and slaty appearance, sometimes streaked with yellow, friable, and soon crumbling by exposure; other kinds are found of seemingly impure quality, and are equally useful. They are now applied in smaller quantities and more frequent, as large doses are found to form a retentive subsoil like paste. The clays of Norfolk contain a portion of calcareous earth, and are by many eminent cultivators preferred to marl, and many of the great improvements effected in that county are to be attributed to the raising and mixing that subsoil with the lighter and upper stratum. In other parts of the kingdom, clays are also preferred to marls after a long and extensive experience of both substances, but such clays are soft and loamy, and effervesce slightly with vinegar. The great difference of the quality in which all these substances are found, render any rule or general direction wholly beyond the question; a mineral acid will show the presence of calcareous matter, but can give no directions deduced from that circumstance either of the general quality of the substance as a fertilizer, or of the quantity that will be required to produce a result. The presence or quantity of calcareous matter is no certain criterion either of quality or effect, for marls that show little or none by effervescence are good manures, and marls of great difference in colour and in chemical composition have been dug from the same pit where they lay contiguous and almost mixed with each other, and have shown no discernible difference of effect in any of the crops when applied in equal quantities on the same soils. The fairest test would be a trial made of a certain quantity of any substance on a given space, and conducted under common circumstances and on tangible grounds, and divested of the vaunting reports which have seldom been verified, and have tended to throw a discredit on the publications of truth.

J. D.

THE HISTORY OF THE HORSE— THE VARIOUS BREEDS—AND THE SUPPOSED HEREDITARY PREDISPOSITION.

BY MR. G. BAKER, REIGATE.

(From the Veterinarian.)

The value of the horse has been acknowledged from the remotest antiquity; and in tracing his history and utility, I am induced to refer to the inspired volume, because it is the oldest record extant. The sublime description of the horse in the 39th chapter of the book of Job must be known to every reader; and the writer of that book is supposed to have been coeval with Moses, and consequently many centuries prior to Homer, who was contemporary with Elijah.

The proximity of the land of Uz to Arabia may have suggested the description; and the Arabians so passionately admire this noble animal, that they have exhausted all the wealth of their fine language and rich imagination in descriptions of his beauty, spirit, and pride.

Thus Autar:—"Shedad's mare was called Jerivet, whose like was unknown. Kings negotiated with him for her, but he would not part with her. 'Seek not to purchase my mare,' he cried, 'for Jerivet is not to be bought or borrowed. I am a strong castle on her back, and in her bound are glory and greatness. I would not part with her were strings of camels to come to me, with their drivers following them. She flies with the wind, without wings, and tears up the waste and the desert. I will keep her for the day of calamities, and she shall rescue me when the battle-dust rises.'" There are many touches in a similar spirit in the history of the horse, Dalies, which was the occasion of a war among the Arab tribes. At a great feast, when the conversation turned upon celebrated horses, one said of Dalies, "He startles every one that looks at him; he is the antidote of grief to every one that beholds him, and he is a strong tower to every one that mounts him. When a night of dust sheds its obscurity, you may see his hoofs like a firebrand."

The Divine command to the Hebrews not to multiply horses, recorded in Deuteronomy, xvii. 19, has been a subject of much research and controversy with biblical critics. Michaelis, a learned orientalist and biblical critic of the last century, in his interpretations of the law of Moses, &c. gives much curious and valuable information on the subject. The divine command to Joshua to "hough the horses of the Canaanites," chapter xi, was the consequence of the above injunction. We find David also acting upon a similar occasion in the same manner. To hough a horse (the word is of Saxon derivation) is to hamstring it, or cut its thigh-sinew. Michaelis, who has devoted an article to this subject, and to whom we acknowledge much obligation for various illustrative information about horses, observes, that many expositors, from ignorance of military affairs and of the veterinary art, suppose the command in Joshua xi. to mean, not that the horses should be killed, but merely lamed in the hind legs, and then let go. But a horse thus severely injured would fall instantly back, and writhe about miserably until he died. The hamstringing can be done in an instant, and the animals generally bleed to death, or, should they survive, the wound never

heals, so that even if the enemy recovered them alive they were ultimately obliged to destroy them. He adds, it were inconsistent with the humanity of the law-giver to lame the horses without putting them to death: the permanent laming of a horse that would still live would have been extreme cruelty, for, being wholly useless, no one would care for it, or supply it with food.

The practice of hamstringing was not confined to the Hebrews: we find the Romans adopted the same course with the elephants of their enemies, having no desire for the assistance of such dangerous auxiliaries.

I believe the practice of hamstringing the bull is sometimes resorted to in the Spanish bull-fights.

The Israelites employed asses instead of horses for all the purposes of agriculture, &c. Christ entered Jerusalem on an ass, possibly in indirect obedience to the command; for he came not to abrogate the law of Moses, but to spiritualize and fulfil it.

In the 10th Commandment the Hebrews were enjoined not to covet the ox or the ass of their neighbours: if these neighbours had possessed a valuable horse, it would have been much more desirable.

A direct allusion to the absence of cavalry as a cause for a more implicit trust in the power of Jehovah, is frequent in the pages of the Old Testament.

In chapter i. of the 2d book of Chronicles, we find Solomon importing horses from Egypt, not only for his own use, but for the kings of the Hittites and the kings of Syria. There have not been wanting commentators who endeavour to prove that Solomon not only traded in horses, but profited by the supineness of the Egyptians, and their objections to the hazard of exportation by maritime commerce, combined with the facilities of his own dominions to secure a monopoly, while he increased the safety of his own territories by an effective body of cavalry.

It is interesting to observe the price given by Solomon's factors in the wholesale purchase of horses and chariots: each horse was 150 shekels, which, according to the lower or higher value of the shekel (2s. 3d. or 2s. 6d.), would be from 17l. 2s. to 18l. 5s., while the chariots at 600 shekels would be from 68l. 9s. to 75l. It will be observed that the latter sum is four times that of the former, which gives some probability to the opinion, that in this, as in other instances, the word *mercubah*, rendered chariot, denotes the horses belonging to a chariot; and, consequently, as it was then customary to yoke four horses to a chariot, the price of a set of chariot horses quadrupled that of a single horse. The Septuagint, however, understands a chariot to have been intended, and, upon the whole, it was most likely. Michaelis says the fixing of a price had the look of a monopoly, and indicates, besides, that horsemanship was in its infancy; for whenever people have sufficient knowledge of horses, with all their combinations of faults and excellencies, to judge of them as amateurs, one may be worth ten times as much as another, particularly in a king's stable.

In the prophecy of Isaiah (ch. v. ver. 28) of the invasion of Judea by the Babylonians, it is said, "their horses' hoofs shall be counted as flint;" and it is necessary to observe that this people were noted for their power in horses and chariots.

Xenophon, in the 2d book of the *Cyropædia*, represents Cyascares as stating to Cyrus the force

which the allies opposed to him might bring into the field. The number of the Babylonians was set down at 20,000 horse, and 200 chariots, double the number of any other power of Western Asia.

The allusion to the hardness of the horse's hoofs is conjectured to arise from the fact, that the ancients did not shoe their horses by nailing iron plates to the foot. They had, indeed, shoes of leather, gold, and silver; but these enclosed the whole hoof, and were bound or tied on, being used very rarely, and only on particular occasions. Hence the hardness of the hoofs was a very important consideration, and Xenophon lays much stress on this point, observing, that "the good hoof is hard and hollow, and, when struck on the ground sounds like a cymbal." He also suggests means by which the hoofs may be hardened. The necessity of such hard hoofs in war-horses did not escape Homer, who continually applies to them the epithet brazen-hoofed.

The fable of the centaur Chiron, the tutor of Esculapius and Achilles, is conjectured to have originated in the Thessalians having acquired the art of the manege from the Egyptians, who were, we know, acquainted with the value of the horse for riding and driving, first, from the ancient sculptures, in which both are represented; and, secondly, by Joseph's bartering the hoarded corn for horses and asses; and Miriam, in chanting the deliverance of Israel, celebrating the overthrow of both horse and rider.

The poetry of Homer abounds in allusions to steeds and chariots, which, with beauty and armour, constituted the most attractive portions of the spoils taken in battle. The coursers of Rhesus, fleet as the wind and white as the driven snow, were an inestimable prize to Thidides; and it was the hope of obtaining the immortal-bred steeds of Achilles that urged Dolon to the adventure that cost him his life. One of this "heavenly race" was subsequently endowed with the gift of speech and prophecy; but like Cassandra, raised his voice in vain.

The military strength of Greece did not consist in her cavalry, which was composed only of men possessed of estates, and able to furnish horses at their own charge.

The practice of human and veterinary surgery appear at this time to have been exercised by the same person. Hippocrates, the most celebrated Greek physician, and father of medical science, practised indiscriminately on the horse and his rider, (see La Fosse's *Dict. d'Hippiatrique*); and in addition to his medical works, he has written a treatise on the curative treatment of horses. Xenophon has also a treatise on equitation (*De re Equestri*), and an interesting description of the wild ass of the east.

The well-known anecdote of Alexander taming Bucephalus enables us to deduce three conclusions: that Thessaly still maintained its reputation for horses — that Macedon was far behind in the equestrian art — and that horses were of great value, as the price demanded for Bucephalus by Philonicus was no less than thirteen talents, or 2,518l. 15s. sterling.

When Darius advanced to meet Alexander, there were 400 led horses for the use of the king, exclusive of the cavalry, 10,000 of which body were slain in the battle of the Granicus.

At the foundation of Rome, Romulus chose 300 young men of the noblest families to serve on horseback; but, after the institution of the census by Servius Tullus, all persons who were worth

400 sesteritia (3,125), and possessed an unblemished character, had the honour of being admitted into the order of Equities. On being enrolled, a horse and gold ring were given to each, and he was obliged to appear on horseback whenever the state had occasion for his services. This constitution of cavalry continued until the time of Marius: after that period the military affairs (with which under the domain of ancient Rome every thing concerning equitation is inseparably connected), were remodelled. The knights preferred the enjoyment of ease and affluence at home to the dangers and fatigues of war abroad; their places in the army, therefore, were filled by foreign horse, and the title became a mere honorary appendage, unconnected with military duty.

A legion consisted of 3000 infantry, as at first fixed by Romulus; it was afterwards increased to 6000; but the common number was from 4000 to 5000. The Roman cavalry, in battle, were posted on the wings, or two extremities of the enemy, and fought sometimes on foot and sometimes on horseback, as the occasion required. I need not remind the classic reader of the description of the war horse in the *Æneid*, second only to that of Job. The line

"Rings to the solid hoof that wears the ground,"

proves by analogy that the practice of metallic shoeing was not yet established. This was first practised during the dark ages, when the classic term "*veterinarius*," employed by the writers of the Augustan age, became changed to that of "*farrier*," derived from the metal with which the horses were shod.

The Romans delighted in public games: they formed a part of what Bulwer aptly calls the graceful superstitions of paganism; and when, as in the chariot races, they were divested of the sacrifice of animal life, must have been alike exciting and picturesque.

The chariots were named *Bigæ*, *Quadrigæ*, &c., from the number of horses yoked to them: these were always arranged abreast, however numerous; and Suetonius relates, that at the Olympic games, Nero made use of a decemjugis, or chariot drawn by ten horses thus yoked.

Caligula paid divine honours to his horse, and fed him from vessels of gold in a manger of ivory.

The allusions to the horse, and subjects connected with him, become now so numerous in the Latin classics, that we will pass on to an author who has embodied in his writings the plith and spirit of their united productions; namely, Vegetius, a Byzantine nobleman, who flourished towards the close of the fourth century, in the reign of Valentinian II. His works were a sealed book during the long night of Gothic darkness; but on the revival of learning by Francis I., who commanded the translation of the Constantine collection, they were translated into Latin, and thence into the modern languages of Europe. From them we may trace the first work on veterinary subjects published in England, by Blundeville, in the reign of Elizabeth, which was chiefly a compilation from ancient authors who had written on the subject.

The first mention of horses in England is by Julius Cæsar, who remarks that, on his first invasion, the Britons had great numbers well trained to warlike exercises. The Romans, probably, contributed little to improve the breed of horses, since no trace of amendment are to be found during so many ages. There is a tradition, that the Eng-

lish mares and stallions were so valued by the Saxons, that Athelstan prohibited their exportation except as presents.

Roger de Bellême, created Earl of Shrewsbury by William the Conqueror, is the first who is recorded to have made attempts towards the ameliorating our native breed. He introduced Spanish stallions into his estate at Powisland, in Wales; from which that part of the country was for ages after famed for a swift race of horses. Strength and swiftness were then more important than shape, as the form of the horse was entirely hid by the armour at that time in use. The number of horses in the time of Stephen is said to have amounted to 20,000.

In the reign of Henry VII. and VIII. more particular attention was paid to the important improvement of the breed of our horses. The regulations made, and the means employed, were in unison with those unenlightened times, and consisted in arbitrary directions and impolitic restraints, not calculated to advance the intended purpose. Magistrates were empowered at Michaelmas tide to scour the heaths and commons, and put to death all mares considered of insufficient size to bear good foals; and the prohibition of Athelstan to export horses was continued, in particular as regarded stallions.

In the reign of Elizabeth the whole kingdom could not supply 2000 horses to form our cavalry. It was, probably, in consequence of this deficiency that our importation of foreign stock took place, which gradually improved the native breed. In the reign of James, horse-racing became fashionable throughout England. It was a favourite diversion of the Stuarts, and much encouraged by them. Cromwell did not forget that necessary appendage, a stud of race horses. By instituting royal plates at the restoration, additional encouragement was given to horse-racing, and much emulation was promoted among breeders, with the judicious view of perfecting and extending a race of horses fit for the road, the chase, and for war—while an enlightened policy allowed free exportation. From this period to the middle of the last century the system of renovation from the different original foreign stocks has been occasionally adopted; the consequence has been a decided superiority over the parent stock from each country, and a peculiar breed of our own, of all denominations, of superior proportions, speed, power, and utility.

Having traced the horse to a period when it is well known to all, as circumstantially as can be expressed in so limited a space, in continuation of the subject I will, in a future number, offer some observations on the distinguishing characteristics of the different breeds of horses, foreign and domestic, and conclude with some practical observations on the hereditary dispositions to malformations, and the necessity of selecting such animals for breeding as come nearest to the standard of desired perfection.

(To be continued.)

NEW MODE OF DETECTING ADULTERATION IN FLOUR.—An ingenious and scientific gentleman in Paris, M. Sellier, who, it will be recollected, some time since pointed out the intimate connection existing between sound and electricity, having had his attention called to the subject of the adulteration of flour, by its admixture with the fecula

of potatoes, has been so fortunate, in some recent electrical experiments, as to hit on a means which, with but little practice, may be employed by any one for the purpose of detecting the presence of fecula in flour, and showing the actual extent to which the fraud has been carried. M. Sellier's process is this: he takes a plateau or board of a flat surface, over which has been laid a coating of common sealing-wax, and charging part of this surface with positive and part with negative electricity, by means of a Leyden jar, he throws on it, through a barber's puff or small bellows, a small quantity of flour, when, if the article has been mixed or adulterated, even to a fiftieth part, the flour is completely detached from the extraneous matter, and attracted by the negative electricity, and the fecula by the positive. The appearance described on the waxed board by the fecula is what is known among scientific individuals as the figures of Lichtenbergh. The difference is so great between flour and fecula, when examined either through a microscope or magnifying glass, the fecula presenting a variety of bright transparent particles, while the flour retains its dead opaque white appearance, that the most unpractised eye requires but a short space to distinguish the one from the other.

NATURAL HISTORY OF BRITISH WOOL.

Wool has ever been the most pre-eminent of our staple productions. In the early ages of our history, it was one of the principal objects of commerce, and various kings took great interest in it as a valuable article for increasing the revenue. At this time the English were shepherds or wool-merchants, and sent this commodity chiefly to Italy and the Netherlands, where it was manufactured into cloth, and then returned to Great Britain; but this system of traffic proved very disadvantageous, and our English Justinian, Edward III. prohibited the exportation of it, invited, and encouraged the Flemings, who were persecuted in their own country, to settle here, granting them the free exercise of their religion, and many peculiar rights and privileges in return for the benefit derived from the introduction of the weaving branch. It must not be supposed that the manufacture of cloths was first actually brought into this country by the fugitive natives of Brabant and the Netherlands. Mr. Luccock, in his valuable treatise on wool, says "that the Romans not only taught the rude subjects the art of weaving, but succeeded so far as to induce them to exchange the skins in which they had hitherto been clothed for the more comfortable attire of their conquerors."

Winchester was the first place that possessed a manufactory, and hence we may reasonably conclude that through the first nine hundred years of the Christian era, wool in England was not entirely neglected. About the year 925 a fleece was valued at two-fifths of the whole sheep, the value of sheep continuing the same through several centuries; but in 1135 it declined fifty per cent., whilst wool at the same time greatly increased in price. The number of sheep in the kingdom was very inconsiderable before the time of Edgar, on account of the numerous herds of wolves which retarded their increase; but the measures adopted by that prince to destroy these animals, which are the natural enemies of sheep, manifested a degree of solicitude for the preservation of the flocks, which could scarcely be expected at a period so early, and were admirably adapted to promote that attention to them which contributed to their improvement. It appears that the bettering of the fleece did not keep pace with

the inclination of the people for fine clothes. In the reign of Henry II. Spanish wool, on account of its superior excellence, was imported and manufactured in this kingdom, but the policy of the age did not long permit it. The Mayor of London was ordered to burn every piece of cloth made of it. Yet again this tended to destroy the commercial spirit which began to manifest itself, and to throw the best materials into the hands of foreigners. About 1240 the importation of fine cloths into England, began to be encouraged; although the effects upon the fleeces of the country, and upon the interest of the farmers, must have been more pernicious than the manufacture of Spanish wool could possibly have been, had not the restless spirit of commerce counteracted the evil tendency; and carried out the surplus of wool, which it was calculated to create. The surplus of wool continued constantly to increase from the time of Henry II. down to that of Edward III. and exportation as regularly took it off the hands of the growers; accordingly we find in the southern parts of the island, where the manufacture was most attended to and from which the largest quantity was exported, that the flocks were in the best condition, and the quality of the staple most desirable.

Soon after this the importation of foreign cloth was prohibited, and in 1647, Parliament interdicted the exportation of wool,—a law which was finally established soon after the Restoration of 1660. English woollen cloths have now become noted throughout the markets of the globe for their texture, substance and durability. Still it is requisite to blend a foreign kind of wool with the English for furnishing the superfine cloths. It might be asked why does not England introduce that breed of sheep from abroad, whose fleece might supersede the necessity of importation? For these reasons—the British farmer has another object in view, exclusive of the demand for the fleece. Our nation consumes more animal food than most others. In hot climates, individuals would fall victims to the enjoyment of that which is here only moderation; and in cold countries, the inhabitants are too poor to obtain it; our farmers consequently prefer that species of sheep which is best adapted for the butcher. In Spain the Merino sheep are only valuable for their wool, they stand high on their legs, with large heads and long necks, contracted chests, and are sharp on the shoulders—narrow across the loins, having the skin remarkably thin, soft, and loose. The fleece in fineness and flexibility is probably superior to any other breed in the world; they have the appearance of being buried in wool; the length of the staple is from two to three inches. The number of these sheep throughout Spain has been estimated at about five millions, and are divided into two sorts, Trashumantes, and Estantes,—not that they differ in species, but the flocks of the former travel, whilst the latter are stationary. The Merino flocks chiefly belong to the Grandees, or societies of Monks, and one of the most noted is that belonging to the family of Count del Campo Alango, and from which the breed reared by his Majesty has descended. This flock is said to consist of at least 60,000, having the largest carcasses, and the heaviest fleeces, although the wool is not esteemed the finest. The race of the Escorial, is reckoned the finest wool of all.

We are happy to observe that at length every encouragement is given for the propagation of the crossed Spanish breed, which promises in a short time to make us independent of our neighbours for the article of wool; and make a market on the continent from our superior manufacture of cloth. The growth of wool is completed in one year, at the ex-

piration of which it spontaneously decays, and is naturally renewed. Different degrees of thickness prevail in various parts of the sheep, the wool being closer at the extremities than the roots; and that part which grows during the winter is of a much finer quality than that produced in the summer.

When first shorn wool is termed a fleece, and every fleece is usually divided into three kinds, viz, the prime or mother wool, which is taken from the neck and back; seconds, or that obtained from the tails and legs; thirds or that obtained from the breast. This general classification of wool corresponds with the Spanish methods of sorting which are, *Refinos*, *Finos*, *Terceros*; but there are some wool staplers, who distinguish nine different sorts. The following are the principal objects of attention in the present state of our woollen manufactures.

First, the length of the staple—for this regulates the various fabrics to which the fleece is destined. Thus in carding wool, a short pile and a disposition to assume a crumpled or spring-like shape is an object of prime importance. This shiveling quality Mr. Luccock observes, cannot prevail in too high a degree if it be to make cloths requiring a close and smooth surface. Cloth and woollen goods are made from wool possessing this property, namely felting—the short wool is carded, spun, and woven, and then put into the fulling mill, when the process of felting takes place; the stroke of the mill makes the fibres cohere, the piece subjected to this operation contracts in length and breadth, and its texture becomes more compact and uniform. This process is essential to the beauty and strength of woollen cloths; but for cloths where a long and even nap is required, such as stuffs and worsted goods, blankets, &c., too large a proportion of this curling property would be detrimental, consequently a long pile or staple will be preferable, which is deprived of this felting quality.

This is done by passing the wool through iron combs, which takes away the laminæ or feathery part, and approximates its nature more nearly to that of silk or cotton.

Secondly, pliability of wool is another very important quality.

Thirdly, a soft pile is necessary in a good fleece, and in this respect the Shetland wool is the best, its softness depends principally on the nature of the soil on which sheep are fed; those sheep which pasture on chalk districts, or light calcareous soil, produce hard wool, whilst those fed on rich argillaceous soils are distinguished by the softness of their wool.

Fourthly, the specific gravity, or relative weight of the pile.

Fifthly, the smell of wool is not much regarded, provided that no disagreeable odours are emitted; the wool must be pure, as this is necessary for bright colours.

Sixthly, the last property is trueness of hair, or a uniform regularity of pile, in which no coarse or shaggy hairs are perceptible.

There are various modes of classifying wool bearing animals, as long horned, short horned, and sheep without horns, but for the purposes of manufacture, the quality of the wool is obviously the best criterion. Among the longer ranges of long-woolled sheep, the first to be noticed, and the most northern, is situated near to the Tees, a river separating the Bishopric of Durham from the county of York. The second called the Lincoln district, comprehending the south eastern point of Yorkshire, nearly all Lincolnshire, and the Fen Lands of Huntingdon, Cambridge and Norfolk.

This kind of wool is found on sheep frequenting

the smaller marshes of Essex and Kent, which surround the inlets of the sea, but is much more abundant in those of Romney and Guilford. We meet with it in the counties of Dorset, Devon, and Cornwall upon the Cotswold Hills, in some detached parts of Lancashire, Oxford, Bedford, and Stafford, through the whole of Leicester, Rutland, Northampton, and Huntingdon, and along the banks of the larger rivers. It is remarkable that the short wools of the kingdom do not so distinctly range themselves in districts, as those of a longer staple, but fill up the whole space. Besides that which has been noticed as the pasture of the heavier breed of sheep, there are a few remarks which may be appropriately made here; wool of which hats are made is neither spun nor woven, but locks of it being thoroughly intermixed and compressed in warm water, cohere and form a solid tenacious substance. The art of producing from the fleece a warm clothing, was never lost, even during the days of the darkest ignorance. Luccock remarks that spinning and weaving were in use fifteen hundred years before the era of the common reckoning, and whilst the manufacture of cloth was confined to the houses of the grower, and the business of it transacted by his domestics, there was less room for the stimulation and exercise of genius than in after ages; yet in the simplest days of Greece, it was not deemed an employment unsuitable to palaces, nor did a princess degrade her dignity by superintending the labours of the loom, the distaff, and the vat. It was in such occupations, that she contended for the prize of fame, and after with her own hand drew the lengthened thread, or conducted it through the dividing web, happy to form a more splendid, firmer, or richer garment than her rival. By such innocent competitions, they produced the most salutary effects upon the workmanship of each other, the classes immediately below them, and upon the fleeces of their country; doubtless they were at first compelled to exert their ingenuity upon imperfect materials, to attempt the production of soft and attenuated threads, like those which they saw in the linens of Egypt, from coarse and elastic ones, and to give the beautiful colouring of the several flowers, to dark and dingy fleeces. Under such disadvantages, and excited by an almost unbounded spirit of emulation to display their taste and gratify the vanity of their masters, the golden fleece of Colchis must have appeared to them a treasure, sufficiently valuable to become in part the object of a voyage full of dangers, and to be celebrated in the songs of Orpheus.

REMARKS ON THE ROADS IN FRANCE.--

No hedges, no divided fields, no cattle grazing; women doing farm labour; horses talked to, and reasoned with, instead of being beaten. If a peasant wants to get on a little faster, he descends from his *roulage*, and runs on before the horse, who immediately sets off after him. No comfortable-looking houses, to which you may suppose Mr. Jenkins, Mr. Smith, or Mr. Higginbotham to have retired, after a life spent in business. No nice little gardens, with monthly roses, bee-hives, cabbages, onion-beds, in front of the poor man's cottage; no wall-flowers near the door, nor tuft of house-leek over it; no little patches of sweet-william, nasturtium, strawberry plants, currant and gooseberry bushes. Thinks I to myself, "You may grumble at home, my boys: but you would be sorry to change with your own class in France"—that is, as far as I saw of it.—*Journal of Barnes, the Pantaloon, in Bentley's Miscellany.*

WEST SUSSEX AGRICULTURAL ASSOCIATION.

From the above subject we turn to another of an extremely opposite character, and calculated to engender feelings of a very different kind, and in which the high and mighty in the land are found mingling with the lowly and humble, in which those whose rank in society brings them in immediate contact with royalty, and notes them as the first in the land, exalt themselves far above the honours which station can confer, by promoting the mental and physical happiness of the poor and him that hath none to help him, of the man whose lot it is to earn his daily bread by the sweat of his brow. Whether it is that when the mind is brought back from the plodding daily pursuit of business, which leaves little time for the exercise of the finer feelings, the mind becomes more susceptible, we know not, but this we can safely assert, that never have we found our feelings so powerfully operated upon as when witnessing the proceedings at the meeting of the West Sussex Agricultural Society, for the distribution of prizes to meritorious agricultural labourers, on Friday last.

This society has been established five years, and has, during that period, distributed nearly 1,000*l.* His Grace the Duke of Richmond is president of the society, and labours earnestly to promote its prosperity. The best evidence of his zeal and exertion on its behalf, will be found in the fact that although detained in the House of Lords on the debate on the corn laws, which came on on Thursday night, and was protracted until past three o'clock on Friday morning, yet he travelled to Goodwood, upwards of sixty miles, and arrived precisely at one o'clock on Friday, the hour appointed, to take the chair at the meeting. This society is the first which admitted the labourers, successful candidates, to dine in the same room with the members. Upon this occasion the dinner took place in the Tennis Court, on the confines of the park; about 150 gentlemen sat down to dinner, and nearly 100 labourers, to whom the prizes were to be given, at tables at the other end of the room. His grace was supported by the Lord Bishop of Chichester, Archdeacon Wilberforce, C. S. Dickens, H. Hollist, Esq., a large body of the clergy in the counties of Sussex and Hants, several visitors from a distance, and a large number of farmers. The Duke of Richmond occupied the president's chair, and the vice chair was filled by a venerable old labourer, 80 years of age. Animated with the same estimable and benevolent spirit which actuates the noble duke, his eldest son, the Earl of March, took his seat at the labourers' table, and on the few occasions when he was called upon to address the meeting, expressed himself in terms which called forth the warmest marks of approbation from the meeting. As soon as the cloth was removed, the president rose, and having, in very appropriate language, adverted to the recent attack upon the life of her Majesty Queen Victoria, read an address for the approval of the meeting, which he proposed should be presented to her, and which was unanimously approved and adopted. The other useful loyal toasts having been

given, the healths of the Lord Bishop of Chichester, the Archdeacon Wilberforce, &c., having been drunk and responded to, the distribution of the prizes was commenced. The first prize was the gift of the Bishop—a bible and common-prayer book, in large type, adapted for old persons, handsomely bound: it had been awarded to the old man, who occupied the vice-president's chair, and was presented to him by his Lordship with an appropriate address, as were also the other prizes of the like kind. These prizes were in addition to any others awarded to the candidates by the society.

His Grace the Duke of Richmond then proceeded to present the prizes awarded to each of the successful candidates in sums of money from ten shillings to five pounds. The varied remarks made by his Grace to each individual, applicable to the peculiar circumstances of the case, and his local knowledge extending to every parish in the whole of West Sussex, attracted general observation. The instances of long services, in one case amounting to 50 years, of large families brought up without any parochial relief, and of money saved by some of the successful candidates, was surprising, and tells well for the character of both master and man. Nor was the conduct of the females less deserving: in one instance, a widow, having maintained three children without parochial assistance. But the prizes which, above all others, were most calculated to call into action the best feelings of our nature, and the recital of which deeply moved many in the room, were those for both males and females, married and single, who, according to the conditions in each case, after providing for themselves, had "afforded the most material aid to their parents or relatives." Here was seen, in the conduct of the uneducated peasant, the genuine working of the affections of the heart. Here were displayed acts, which, upon reflection, must have humbled the haughty, had any such been present, and, we are persuaded, did elevate the character of the poor working-man in the minds of the lookers-on. Married men, having families, making allowance to, and even supporting, their parents out of their small earnings, brother assisting brother, and lads of 18 and 19 giving up the *whole of their earnings* for the support of a father or a mother, and the rest of the family. Encouragement should be given to good conduct of every description, but in no way will a more decided and marked amendment, be effected in the general conduct, than by the cultivation of the kindly feelings of our nature. The lot of the labourer is one which needs the aid of his superiors in worldly matters; he has, as it were from his very outset in life, a barrier set round him, which he cannot pass; subject to privations even in the best of times, he occasionally experiences hardships, which renders it difficult to resist temptations to transgress those laws which he is told by the wicked and designing, are made to benefit others and to injure him. Relying upon the labour of his hands, if he fail to obtain it, is it surprising that he should be driven sometimes to acts of impropriety? A living writer says:—

"A man willing to work and unable to find work, is perhaps the saddest sight that fortune's inequalities ex-

hibit under the sun. Burns expresses feelingly what thoughts it gave him—a poor man seeking work—seeking leave to toil, that he might be fed and sheltered; that he might be put on a footing with the fourfooted workers of the planet which is his! There is not a horse willing to work but can get food and shelter in requital, a thing this twofooted worker has to seek for, to solicit occasionally in vain; he is nobody's twofooted worker; he is not even anybody's slave."

Let the high and mighty recollect that this is frequently the condition of the British labourer. Let them learn from the statements above, that he has a heart cast in the same mould, and endowed with the same qualities with themselves, and that it is his difficulties and unfortunate position which drive him to acts which, under other circumstances, he would abhor. Let them reflect that he asks only "work," and they will, we hope, be awakened to the reflection, that the goods which they enjoy are held in a great measure in *trust*, and that it is only required of them to exercise that trust in an equitable manner, not in any way disregarding their *own* interest. We earnestly entreat those who have not witnessed a meeting of the kind, to visit the meeting of the West Sussex Society, as we feel persuaded that a conviction of the benefits resulting to all parties from the establishment of such institutions, will be the result. In order to afford information to persons who may be desirous of introducing the system pursued by this Society, we subjoin a detailed account of the proceedings. —*Mark Lane Express*.

The fifth general meeting of this excellent Association, convened for the distribution of premiums to the successful agricultural and domestic labourers, for skill, honesty, industry, and general good conduct was held at Goodwood on Friday, June 12, when there was a large muster of the nobility, gentry, and clergy, to do honour to the occasion, and to testify by their presence and countenance their approbation of the meritorious conduct of those who had so deservedly been awarded premiums. Fortunately the day was fine, but cloudy, a circumstance of some advantage to the shearers. During the forenoon a great number of carriages, with ladies and visitors, arrived to witness the interesting scene exhibited in the competition for the sheep-shearing prizes. This excellent association, one of the first established in Sussex, has continued to increase in importance and utility, and has been productive of much benefit throughout the county, both by precept and example. The business of the day commenced in the park by the sheep-shearers being allocated in their different stations, each having six sheep to shear. There were as many as thirty candidates entered to compete for the premiums offered: the certificates of one, however, were informal. The following were the awards made, with the number of the pen in which the candidate was placed:—

- £3. to William Pryer, jun., of Harting, No. 1.
- £2. to George Brown, of Wymering, No. 11.
- 30s. to John Martin, of Harting, No. 14.
- 30s. to William Quennell, Bexgrove, No. 9.
- 15s. to William Glaysher, Chithurst, No. 26.

About half-past two, dinner having been announced, the members, company, and successful candidates, adjourned to the Tennis Court, Waterbeach, where an excellent dinner had been provided by Mr. R. Wood, to whom this portion of the business of the day was very judiciously entrusted. His Grace the Duke of Richmond, K.G., President of the Association, accompanied by the Lord Bishop

of the Diocese, led the way, preceded by the band, and were followed by a long train of gentlemen.

Two long tables were laid the whole length of the Tennis Court, but these being found insufficient to accommodate the very numerous company on this occasion, a third table was added down the centre. There could not have been less than 300 persons present at dinner, besides whom numbers dropped in after the cloth was removed. The room, which was very tastefully decorated with laurels, flags, and emblematic devices, since the last meeting had been completely enclosed and glazed, and was therefore very comfortable and commodious in every respect.

The Duke of Richmond was supported on the right and left by the Bishop and Dean of Chichester, Archdeacons Webber, Wilberforce, and Hare, C. S. Dickens, Esq., H. Holliet, Esq., &c. In the Vice-President's chair, at the lower end of the room, was the venerable old man who was in the chair last year,—Thomas Gardener, of Appledram, aged 80,—the same to whom the handsome premium offered by the Lord Bishop of Chichester was awarded. Supporting this venerable octogenarian, and mingling with and assisting the labourers, were Lord March, Lord H. Lennox, Mr. C. Osborn, Mr. John Ide, and others. Among the company we also noticed the following clergymen and gentlemen:—the Revs. Messrs. H. E. Manning, H. Browne, W. Miller, E. Miller, H. Atkins, Rusbridger, W. Watkins, Thompson, C. Hutchinson, C. Marriott, H. Legge, T. S. Cogan, H. Cogan, W. Turner, T. Brown, Luxford, Wither Smelt, R. Millikin, S. Fairles, Buckner, S. Westbrook, R. Tredercroft, S. Douglas, J. W. Deacon, L. Johnson, E. Edele; Captains Stracey, Pilkington, R.N., Tucker, Harrison, R.N.; Doctors M'Carogher, and Forbes; Messrs. F. Smith, J. Napper, W. Wagner, C. Teedale, E. and W. Humphrey, J. B. Freeland, E. Freeland, C. Dorrien, B. Martin, G. Henty, R. Elliott, G. Peskett, Putland, Grantham, Cole, J. Sivewright, J. Elliott, H. Comper, sen., W. Dewey, sen., and jun., J. Price, W. Postlethwaite, W. Titchener, W. Gibbs, J. Hack, &c., &c.

On the removal of the cloth, grace having been said by the Lord Bishop, the Chairman rose to propose as the first toast, the health of "The Queen," prefacing it by the following remarks:—Circumstances had occurred within the last few days, which he should ill perform his duty as chairman of this meeting, did he not allude to; and before asking them to drink with becoming loyalty, to the health of her Majesty, he begged of this numerous and respectable meeting to join him in an address of congratulation, expressive of their horror and indignation at the diabolical attempt against her Majesty's life which had been so lately made. (*Cheers*.) He felt that there could be no more fit and proper occasion than the present for such an expression of feeling, when so large and numerous an assemblage were met together, including the Bishop and the Clergy, the Landowners, the Magistrates, the Farmers, the Labourers. He asked of this meeting then, if they agreed with him in his proposition, to give him permission to read to them the draft of an address to be signed by him as their chairman, and forwarded to her Majesty. His Grace then read the address, which expressed horror and indignation at the atrocious and treasonable attempt on her Majesty's life, and congratulation at her preservation from so great a danger. It further expressed deep concern that a being could be found in her Majesty's dominions, base enough to attempt so flagrant and wicked an act; and concluded by

offering an "earnest prayer to Almighty God that he would long preserve to us the blessings we enjoy under her Majesty's mild government, and continue to preserve to us all we hold dear." (*Loud applause and unanimous approbation.*) His Grace then went on to comment upon the coolness and bravery which her Majesty had displayed upon this occasion, proving herself not unworthy of the brave and illustrious stock from which she was descended, inasmuch as she had driven out the next evening in the same open carriage through the same thoroughfares, thereby testifying her confidence in the loyalty and affection of her people. His Grace concluded by proposing the health of "Her Majesty," hoping that she might long be spared to reign over the country with credit to herself, and advantage to her subjects, who owe her allegiance. (*Applause.*)

The healths of "His Royal Highness Prince Albert," and of "The Queen Dowager and the rest of the Royal Family," were then given from the chair, and drank with three times three.

The CHAIRMAN then called upon the company to drink to the health of "The Lord Bishop and Clergy of the Diocese of Chichester." The society which he had the honour to address had received a great deal of support and countenance from the Right Rev. Prelate, who, they were well aware, besides attending at their meetings, had given on this occasion some very handsome premiums to the labourers. Since his lordship had been at the head of the diocese, he had by his affability and courtesy endeared himself to all who knew him, and had exerted himself to the utmost to advance everything tending to promote the spiritual welfare and temporal well being of the labouring population of the county generally. For this they were all deeply grateful to him, and they looked up to his lordship with regard and respect. Of the resident and parochial clergy he need say little, for they were well known to those present—their neighbours and friends—and he was most happy to see so many of them present to-day. They all knew from every day's experience how consistently the clergy performed the duties of their sacred office, how diligently they ministered to the spiritual wants, and sought to advance the temporal welfare of their flocks, how patiently and assiduously they visited the cottages of the poor and the dwellings of the rich, ever ready to afford consolation in sickness or adversity, faithfully preaching the gospel, and more than this, abiding by its truths and following its precepts. He begged they would drink to the health of "The Bishop and Clergy of the Diocese" with three times three.—Drank with musical cheers.

The Bishop of CHICHESTER rose to return thanks on behalf of himself and the clergy. They were indeed highly honoured by the reception they had met. With respect to himself, he was all unworthy of the kind and honourable mention which their president had been pleased to make of his humble services. But it was most grateful and satisfactory to him to hear his brothers of the ministry so highly and respectfully spoken of. They would ever feel much pleasure in promoting the objects of the society in which they had been embodied, and would always be found ready to join in every institution having for its object the honour of God and the good of our fellow-creatures.—(*Applause.*) He believed the general wish of this society—as of the clergy—was to advance first the eternal interest, and afterwards the temporal interest of the people; piety and virtue would ever be found the best foundations of industry and skill, and where a store of heavenly knowledge had been acquired, there honesty, sobriety,

and good conduct would be sure to follow as its natural fruits.—(*Cheers.*)

The CHAIRMAN then rose and said, that having drank, in the manner he knew they would, the Bishop and the Clergy of the Diocese of Chichester, he had now to propose to them "The Clergy of the Diocese of Winchester," for they must be aware their society extended into the county of Hants. From all he had heard of the clergy of that diocese, they were every way worthy of the respect and esteem of the world, and they were honoured to-day with the presence of one of its most distinguished members, in the person of Mr. Archdeacon Wilberforce.—(*Applause.*) When I recal to your minds (said his Grace) the name which he bears (*applause*) that he is descended from one who, through a long life, exerted himself for the amelioration of his fellow-men, although of another colour (*applause*), by removing that blot upon our national character, that anomaly of a free and enlightened people, the upholding and countenancing of slavery, and when I tell you that the gentlemen who here represents the clergy of that diocese is known to inherit all the virtues of his father, that is enough for the farmers of Sussex to receive and drink his health with all due honour.—(*Loud applause.*)

Archdeacon WILBERFORCE rose to return thanks, and said: I really feel utterly unable to acknowledge the kindness with which this toast has been received. You must know, one and all, from experience, that there are some feelings too deep and too sacred in the mind to be expressed at will; and such is my case at the present moment. Your hearty, unanimous, and approving cheers have addressed themselves to the innermost feelings of my heart. My lords and gentlemen, my heart thanks you, though my words may not fully express it, for that remembering acknowledgment of him that is gone (*applause*), an honour which I deeply feel from such an assembly. I have never before been present at such a gathering as this, and I seem never thoroughly to have known before my native land—never to have known what it was that made our own England to differ in God's great mercy from every other land under the sun. I have to-day seen something of these sentiments, which have raised and ennobled the peasantry of our soil, and have lifted England to the preëminent rank in the scale of nations. Those feelings and that true conduct which has taught every man what it is to be a man, and so to fulfil his worldly duties as a man, I do believe from the bottom of my heart, and it is settled in the deepest of my convictions, that to that pure and reformed religion which we profess is England indebted for her greatness of soul—to that spirit of peace and goodwill, piety, and charity, which has taken deep root throughout the land. Upon the foundation of our excellent established church, our own civil and religious liberties are based; and so long as that is preserved, they are secure—so long as we build upon that enduring foundation, we, as a nation, shall endure and prosper.—(*Applause.*)

The CHAIRMAN then called upon the company to fill a bumper, and to drink with three British cheers prosperity to the labouring classes of the empire, more particularly to those worthy friends of theirs, who were their guests on the present occasion—"The successful candidates." He (the Chairman) had to congratulate the members on the manner in which the Society had increased in importance within the last few years. They might remember that the Society emanated originally from a farmer's meeting held at Chichester, at which he was in the chair. The first premium (said his Grace) was pro-

passed by Mr. Charles Osborn, who sits at the bottom of the room, and who I will always remind you was the originator of this very excellent institution. The farmers present at that time agreed with him on the propriety of establishing such an association, and the Society was formed. In 1837 there was only one competitor in class A. In 1839 there were twelve. Two years ago in class B five premiums amounting to 15*l.* were offered, and only four persons appeared to compete for them; at the present meeting, in the same class, there were nearly 50. He would repeat to those assembled around him, and remind them again and again of it, that there was no want of inclination on the part of the clergy, landowners, and occupiers, to find the necessary funds for rewarding merit, honesty, and industry. They all knew individually of the cases of merit, honesty, and industry in their parish, but the great advantage of this Society had been, that by its means they had been enabled to shew to the country at large how much of industry, merit, and frugality there was to be found among the lower classes, of whom they had just reason to be proud as labourers and domestics, and it was a pleasure to have to award them those rewards to which their good conduct had justly entitled them. This society was the first to set the example, which had since been generally followed, of asking the labourers to join them at the festive board: when they behaved well, they felt honoured and not disgraced by their attendance. Gentlemen, (continued the Chairman) I know, and you well know, the temptations to which every mortal is exposed, and the temptations to which the labouring classes are frequently exposed are of no ordinary nature. They are liable to all the diseases which human nature is heir to—and have often to contend with the pressure of want and the sorrows of adversity,—and if accident or sickness throws them out of employ it is satisfactory to find, as in many of the instances which will come before us to-day, that they have made some provision for the future by deposits in savings' banks, or subscription to benefit clubs. These are examples of what the people may do, if they have that active principle of religion and moral rectitude settled in their hearts; for triumphing over all the temptation to which they are exposed—they come to be respected by their neighbours and employers, and an honest, sober, and industrious labourer never need fear that he will want employment, so long as the feelings of the farmers of Sussex continue as they have been heretofore. I would say in conclusion to those labourers present, that if they feel any gratification at having been singled out and distinguished from their fellow labourers, not by favour or affection, but for their own honest merit, they have an efficient manner of showing their gratitude by setting a good example to their neighbours, and by instilling into the breasts of their children the principles of religion, which would guide and regulate their future conduct. I will say to you in conclusion, "Fear God, honour the Queen, live as brothers with your neighbours, and in Christian charity with all mankind."—(Applause.)

The Earl of MARCH rose and said—Gentlemen, I am requested by the labourers by whom I am surrounded, to return you their sincere and grateful thanks for the compliment you have paid them; and while I could have wished the task had fallen into hands better able to do justice to it, yet incompetent as I am to express all they feel on the occasion, I cannot refuse to perform so honourable an office as that which has been imposed upon me. I beg therefore to tender you again the expression of their

deepest and sincerest gratitude; and their earnest hope is, that they may long continue to merit and deserve the high eulogy you have been pleased to pass upon their conduct. The candidates were then severally called up to receive their premiums, each being presented, in addition to the amount he had gained, with a bordered card containing the particulars of the premium, to be hung up as a testimonial in his cottage. A number of ladies having entered the room to witness the interesting scene, were provided with seats behind the chairman.

Thomas Gardiner, the aged labourer who presided at the lower end of the room, having been called up to receive his premium, was thus addressed by the Bishop of CHICHESTER:—I am about to present to you a bible and prayer-book in large type; but before I give them to you, I would call your attention to a circumstance which I am sure you will highly prize, viz., that of the society having given to these prizes the first place of all the premiums—because they are founded upon the sure principle of Christian faith, which will bear you through this earthly pilgrimage, until you arrive at a better place. These books are given, I would have you to understand, not entirely because you have been a regular attendant at church during the whole of a long life—for you could not have expected any such reward, and therefore it proves that you loved your God and wished to set an example to your fellow-creatures, by showing them the fruits of piety and virtue which proceed in general from a regular attendance on the ministry. I have had, in the course of my life, to present many rewards for learning to young as well as to elderly men—but I can assure you I never presented one before which afforded me so much gratification and pleasure, as this tribute to a poor, honest, pious man. (Applause.)

The Bishop of Chichester's gift was (in addition to any other premiums,) to such agricultural labourers, above 50 years of age, who shall produce the best certificates of character, regard being had more especially to their regularity of attendance at church.—First, a Bible and Common Prayer Book of large type. Second, a Bible of large type. Third, a Prayer Book of large type. First prize to Thomas Gardiner, of the parish of Appledram, aged 80.—Second prize to Thomas Canner, of the parish of Oving, aged 73.—Third prize to Jeremiah Meal, of the parish of Sidlesham, aged 85.

The CHAIRMAN then proceeded with the distribution of the other premiums

CLASS A.—For labourers who have brought up the largest families respectably, with the smallest amount of parochial relief. First, 5*l.*; second, 4*l.*; third, 3*l.*; fourth, 2*l.*; fifth, 1*l.*—First prize to William Macklin, aged 59, of the parish of Earnley, employer H. Duke; has six children, eldest 32, youngest 11, one of whom is subject to fits and almost wholly dependent on him—the other five placed out at service—never received any parochial relief. William Macklin gained the second premium in 1838, and therefore could only now receive 1*l.* Wages, 12*s.* and rent.—Second prize, to John Ewens, aged 50, of the parish of St. Pancras, Chichester; employer J. P. Hayllar, for 20 years; has had twelve children, only three now alive. Candidate had the care of bringing up several others who died, one at eleven, another at seven; eldest child nineteen, and youngest seven, has had a great deal of sickness in his family, was drawn and served in the local militia from 1810 to 1815. In 1817 was drawn for the Sussex militia and paid 5*l.* 10*s.* for a substitute. Never received any parochial relief: Wages, 12*s.* to 15*s.*—3*l.* to Michael Cress, aged 64, parish of North Mundham, employer Mr. C. Gatehouse, 37 years on the same farm, has had thirteen children, eight died young in in-

fancy, eldest 38. Four children well placed out; the fifth, a girl, ill from her infancy, died at 17. The united parishes of Chichester allowed that girl 1s. 6d. per week; with that exception, no parochial relief. Wages, 12s.—21. to Joseph Stevens, 49, Westbourne; employer, Mr. W. H. Poate; 29 years on the same farm; wages, 37l. 4s. per annum, seven children, eldest 28, youngest 10, all out except the youngest, a girl, placed out at early ages, are remarkable for good conduct, relief 10l. 8s., none since 1821.—17. to John Boxall, 60, Slindon; employer, Mr. C. Mellish; on the same farm 23 years; wages, 12s.; has six children (boys) eldest 31, youngest 14, all placed out at eight or nine years of age. In consequence of great continued sickness in his family, and of his excellent character, the parish officers, unsolicited, gave him his house-rent for some time, and on the death of his wife he received 2l. 10s.

In addition to the above, the Sub-Committee recommended that the sum of 1l. be given to Daniel Beech, of Donnington; employer, Mr. C. Fogden; 50 years on the same farm; wages, formerly, 12s., now 6s., four children, two died; the eldest, Sarah, had two places in eleven years, when she married, and the other, Richard, two places in 26 years. No parochial relief, except 20s. once during illness.

CLASS B.—For labourers who have supported since the year 1829 the largest families respectably, with the smallest amount of parochial relief. First, 5l.; second, 4l.; third, 3l.; fourth, 2l.; fifth, 1l.—5l. to James Theates, 39, Westhampnett, employer, Duke of Richmond, wages, 14s., nine children, eldest 16, youngest 1½ years, has had to defray considerable expenses in consequence of the ill health of his wife, during the illness of a child for six weeks, and himself for four weeks; paid for medicine and attendance himself. Parochial relief in whole, 3l.—4l. to George French, 45, Racton, employer, C. Dixon, Esq., 24 years on the same farm, seven children, eldest 18, youngest 2 years, no parochial relief since 1829, and previously, in 1838, 2s. during illness.—3l. to Thomas Burchall, 45, Oving, employer Mr. H. Upton, 30 years in the same service, seven children, one died at 18 years, and another at 3. No parochial relief since 1829. Wages, 13s. [From the difficulty the Sub-committee experienced in awarding the remaining premiums in this class, and from the fact that 4l. in class A, was unappropriated, they recommended that the three individuals named below should each receive the sum of 2l.] 2l. to John Cussell, 36, Farcham, employer, Mr. C. Osborne, 30 years on the same farm; wages, 12s., six children; one died in consequence of an accident. His wife has had a severe illness, and he has paid at two different times 11l. 10s. for medical assistance. Previous to his present employ he paid 8l. per annum for his cottage, now reduced to 1s. per week. Never received any parochial relief.—2l. to Thomas Slaughtier, 42, Northmundham, employer Mr. Hollingdale, wages 12s., six children, eldest 11, youngest 1½ years, had previously to his marriage saved 15l. Never had any parochial relief.—2l. to Thomas Jacobs, 34, Racton, employer C. Dixon, Esq., has six children, eldest 10, youngest 2 years, wages 12s. Parochial relief, 20 gallons of flour in the year 1833.

CLASS C.—For widows who have brought up the largest families respectably, with the smallest amount of parochial relief. First, 4l.; second, 3l.; third, 2l.—2l. to Elizabeth Fleet, 40, Slindon, has been 12 years a widow, is exemplary in her conduct, bringing up her family respectably and in habits of industry, her cottage neat and clean, five children, eldest 17 years, youngest 12, earnings very uncertain, was allowed 5s. weekly for four months, which was reduced to 1s. 6d. till 1837, when it ceased.

CLASS D.—For widows who have supported since the year 1829 the largest families respectably, with the smallest amount of parochial relief. First, 4l.; second, 3l.; third, 2l.; fourth, 1l.—4l. to Harriet Pelham, 31, Boxgrove, has been a widow between three and four years, three children, eldest 9, youngest 3, born four months after her husband's death, earnings 4s. per week, her children still dependent on her, the two eldest being girls, paying 9d. per week rent, never received any parochial relief.—2l. to Charlotte Hill, Bosham, widow

seven years, two children, eldest 20, a girl in a sickly state of health from infancy, and always dependent on the mother, youngest 10. The candidate bears an excellent character in the parish for industry and unwearying efforts to maintain herself and two daughters. No parochial relief.—1l. to James Cobb, 50, Funtington, has been a widow upwards of 16 years, four children, one died at 14 and one at 18. Eliza, the youngest, was ill for three years. She conducts herself with great propriety, and turns her hand to any work, and is useful in the fields when wanted. From 1830 to 1835 received weekly assistance from the parish—first 5s., reduced by degrees to 1s.

CLASS E.—For labourers or widows whose daughters have been placed out at respectable service at an early age, and have remained in service with good characters, and whose families shall have made (by their own industry) the greatest improvement in their condition in life. First, 4l.; second, 3l.; third, 2l.; fourth, 1l.—4l. to James Wilde, 48, Singleton, employer Col. G. Wyndham, on one farm twenty-three years, eight children, four daughters, all placed out at service either at ten or eleven, having all excellent situations, which they have kept many years, eldest twenty-six, youngest ten, and single.—3l. to Sarah Sarby, widow, 58, Slindon, six daughters, eldest 35, youngest died at six months, five placed out at service at ages varying from 9 to 12, two are married, the other three have situations in good families.—2l. to Thomas King, 60, Westhampnett, employer Duke of Richmond, has worked on the Goodwood estate twenty years; ten children, four daughters placed out at ages from 10 to 13, one married, one died, two single, have situations seven, eight, and twelve years.—1l. to Edward Callo way, 58, Aldingbourne, employer Mr. J. Burnard, twenty-three years servitude, four daughters placed out at ages from 11 to 16. (Further particulars in class G.)

CLASS F.—For labourers or widows whose sons have obtained employment, or have been placed out at respectable service at an early age, and have remained in employment or service with good characters, and whose families shall have made, by their own industry, the greatest improvement in their condition in life. First, 4l.; second, 3l.; third, 2l.—4l. to George Hutchins, 68, Upwaltham, employer Mr. J. Heath, two services, one of 31 years and of 27; eleven children, seven sons, all began to work at from eight to nine years of age, and were all taken by one master, with whom they remained until they procured situations. (Further particulars in Class T.)—3l. to John White, 53, Mid Lavant, employer Mrs. Dorrien, worked for Mr. W. Shippin 14 years, Mrs. Dorrien eight years; eight children, six boys, eldest 31, youngest 11, placed out at ages from seven to eleven; they have excellent situations, which they have kept for eight, nine, and ten years; he supported a daughter during an illness of seven years, without assistance.—2l. to Thomas King, 60, Westhampnett, noticed in last class, six sons, one died in infancy, the rest placed out at ages from seven to nine; they have kept their situations for periods varying from five to thirteen years.

CLASS G.—For married labourers and widowers, who have been in employment or service the longest period, and who, in reference to their circumstances in life, shall have voluntarily afforded the most material aid or support to their aged parents, or have made provision for old age. First, 4l.; second, 3l.; third, 2l.; fourth, 1l.—4l. to Thomas Harding, 63, Earnley, employer Mr. H. Duke, three children, wages 10s., parochial relief 10s. in the whole; the candidate had in all ten children, supported a son for eleven months during illness, and has since entirely supported his grandchild; he has saved 15l., which is lent on note of hand at five per cent.—3l. to John Luffe, 61, South Hayling, employer C. Osborn, Esq.; in 1833 was run over and unable to work for six months, when he received 30s. from his parish; up to that time he had saved 14l., which was expended during his illness, since which he has saved 30l., till lately in Havant Savings' Bank, and now lent on interest; two services, one of eighteen and

one of nineteen.—21. to Edward Calloway, 58, Aldingbourne, noticed in Class E, for the last seven years has been in the habit of assisting his father and mother with at least 1s. weekly, and occasionally more, as he could afford it; he gives the old couple their Sunday's dinner at his own cottage.—11. to John Budd, 43, South Hayling, employer C. Osborn, Esq., seventeen years' servitude, five children, eldest 18, youngest 7, wages 13s.; within the last three years has saved 71., deposited in Fareham Savings' Bank, and pigs worth 31.

CLASS H.—For single labourers who have been in employment or service the longest period, and shall have voluntarily afforded the most material aid or support to their relatives. First, 41.; second, 31.; third, 21.; fourth, 11.—41. to Jacob Reed, 42, North Hayling, employer Mr. T. Rogers. Two services, one nineteen years and the other five. Wages from 31. to 91. in the house. Paid the expenses of his father's burial five years ago, and for the last ten years the rent of his mother's cottage and garden, 61. per annum. Is a member of a benefit society, and has obtained a premium for his garden.—21. to John Kent, 21, Eartham, employer Mrs. Huskisson, without change, wages 2s. to 9s. weekly. Belongs to a benefit society, and has supported his widowed mother for the last four years.—11. to William Horn, 43, Aldingbourne, employer Mrs. Huskisson, two services, one twenty-seven years and one eight years. Wages 10s., belongs to a benefit society, is very good to his mother, and pays the rent of her cottage.

CLASS I.—For single labourers who have been in employment or service the longest period, and shall have made the best provision for sickness or old age. First, 41.; second, 31.; third, 21.; fourth, 11.—41. to George Barber, 24, Westdean, employer, W. L. Woods, Esq., has had three services, but with increasing wages, from 2s. 6d. to 12s. per week, has 151. in money, a watch which cost 41. 4s., furniture worth 61. Member of a benefit society eight years, paid 11. at his brother's death for medical assistance, and has given his father 30s.—31. to William North, 44, North Hayling, employer, Mrs. Carpenter, twenty-four years servitude. Wages 10s., has 441. 9s. 4d. in Havant Savings Bank, and 181. lent at interest, in all 621. 9s. 4d.—21. to William Chatfield, Fareham, employer, Mr. C. Osborn, six years servitude. Wages, 12s., has 171. 11s. in Fareham Savings Bank, rents an allotment of a quarter of an acre, which is well cropped, and member of a benefit society.—11. to John Forrester, 49, Eartham, employer, Mrs. Huskisson, fifteen years servitude, has 261. in Chichester Savings Bank, and has been twenty-one years member of a benefit society.

CLASS K.—For single labourers under 20 years of age, who have been in employment or service the longest period, and shall have voluntarily afforded the most material aid or support to their relatives, or made the best provision for sickness or old age. First, 31.; second, 21.; third, 11.—31. to George Clarke, 19, South Hayling, employer, Mr. Hellyer, four years, wages, 3s. to 10s., has 151. 1s. 9d. in the Havant Savings Bank, and member of a benefit society.—21. to John Parvin, 18, Westdean, employer, Mr. J. Hipkin, seven years with Lord Selsey, but always on the same farm, wages, 2s. 6d. to 9s.; all his earnings are given to assist in keeping his mother and sister.—11. to James Birch, jun., 18, Warberton, employer, Mr. W. Halsted, nine years, wages 2s. to 8s., is a member of a benefit society, and by his wish and consent all his earnings are given to his father, and applied to the support of the family, consisting of seven besides himself.

CLASS L.—For female agricultural domestic servants who have been in service the longest period, and shall have voluntarily afforded the most material aid or support to their relatives. First, 41.; second, 31.; third, 21.; fourth, 11.—41. to Charlotte Phillips, 24, Upwarden, in the service of Mrs. C. Wyatt five years and a half, wages progressive, from 51. to 81., and during the time she has been in her present servitude she has allowed her parents 31. per annum, with exception only when suffering herself from a long illness, when for six weeks she was an inmate of the Chichester Infirmary;

they have received smaller sums from her at other times.

CLASS M.—For female agricultural domestic servants who have been in service the longest period, and shall have made the best provision for sickness or old age. First, 41.; second, 31.; third, 21.; fourth, 11.—41. to Hannah Pelling, 28, Birdston, in the service of Mr. Walter Calhoun, wages 81. per annum, has 171. in the Chichester Savings Bank, has also assisted her mother at different times during the whole of her servitude, ten years, with Mr. Calhoun.

CLASS N.—For female agricultural domestic servants under twenty years of age, who have been in service the longest period, and shall have voluntarily afforded the most material aid or support to their relatives, or made a provision for sickness or old age. First, 31.; second, 21.; third, 11.—31. to Hannah Young, 18, Oving, in the service of Miss Boniface four and a half years, wages progressive from 21. to 41. 10s., has 71. 10s. in Chichester Savings Bank. 21. to Ellen Ford, 17, Birdham, in the service of Mr. T. Sparkes four and a half years, board and part clothes, wages, first year to 31., has 21. 10s. now by her.

CLASS Q.—For shepherds of flock-masters having the care of not less than ten score of ewes, who have reared the greatest number of lambs with the least loss, regard being had to the circumstances both as to the farm and flock. First, 41.; second, 31.; third, 21.; fourth, 11.—41. to James Ford, Westdean, employer, Mr. James Hipkin. 225 ewes put to ram; 20 two-tooth, 105 four-tooth, 100 sixth-tooth; died during the year, 1; remaining alive, 224. 307 lambs dropped, 16 given away, 1 born dead, 6 died before weaning, 284 remaining alive at weaning, 4 barren ewes. Has lived twenty years on the same farm. 31. to Joseph Chalton, East Lavant, employer Mr. C. Duke. 510 ewes put to ram; 160 two-tooth, 165 four-tooth, 185 six-tooth; 9 died lambing, 5 in other parts of the year, 496 remaining alive at weaning, 614 lambs dropped, 54 given away, 24 born dead, 4 died before weaning, 532 alive at weaning, 25 ewes barren, 6 slips. 21. to Richard Burns, Westdean, employer Rev. L. V. Harcourt. 273 ewes put to ram; 81 two-tooth, 28 four-tooth, 164 six-tooth; 2 died lambing, 4 at other times, 267 remaining alive; 332 lambs dropped, 17 lent, 7 born dead, 13 died before weaning, 295 remaining, 15 barren ewes, 5 slips. 11. to William Mitchell, Eastbourne, employer Thomas Jenner. 500 ewes put to ram; 19 two-tooth, 31 four-tooth, 450 six-tooth; 8 died lambing, 4 during other times, 488 remaining alive, 598 lambs dropped, 9 born dead, 19 died before weaning, 570 remaining alive, 17 barren ewes, 2 slips.

CLASS R.—For shepherds of graziers having the care of not less than 100 forward ewes, who have been the most successful in lambing them with the least loss, regard being had to the circumstances both as to the farm and stock. First, 21.; second, 11.—21. to Edmund Mail, Sidlesham, employer Mr. James Hobgen. 183 six-tooth and full-mouthed ewes put to ram; 6 died in lambing (3 extreme cases, 3 debility), 2 at other parts of the year, 175 remaining alive, 10 sold at Chichester market April 22, 165 remaining, 206 lambs dropped, 4 born dead, 9 died before weaning, 193 alive on May 16 (date of certificate), 15 barren ewes, 1 slip. 11. to William Voller, Westbourne, employer G. Hipkin. 307 ewes put to ram; 20 two-tooth, 35 four-tooth, 60 six-tooth, 192 full-mouthed; 1 died lambing, 2 at other times, 304 remaining alive. 323 lambs dropped, 1 born dead, 4 given away, 8 dead before weaning, 310 remaining alive, 5 slips.

CLASS S.—SHEEP SHEARERS.—The award in this class is given above.

The CHAIRMAN, after awarding these premiums, made some remarks relative to the defeat of the West Sussex shearers in the recent match in the East, observing that it was no disgrace to have been beaten, seeing that it turned upon a question of taste as to the mode of shearing practised in the two divisions, which were essentially different. He should make enquiries before next year as to which was the

preferable mode of shearing, the old plan or the new. Their shearers had proved themselves to be excellent workmen to-day, and more than this, they were never rewarded for skill and industry, unless they produced certificates of good and moral character.

CLASS T.—For the labourer who, previously to the time of his marriage, had made the best provision for his future maintenance in life. First, 4*l.*; second, 3*l.*; third, 2*l.*—4*l.* to George Hutchins, Upwaltham, noticed in Class F.; present age, 63, at time of marriage, 32; was an in-door labourer at 10*l.* per annum; had 40*l.* in Petersfield Bank, a watch worth 3*l.* 10*s.*, furniture worth 14*l.*; in all at time of marriage, 57*l.* 10*s.* 3*l.* to Henry Oakley, Westhampnett; present age, 29, at time of marriage, 24; present wages, 12*s.*, at time of marriage, 10*s.*; had saved 10*l.* in money, a clock worth 2*l.*, watch 3*l.* 3*s.*, furniture worth 8*l.*; employer, Mr. Cogan; in all 23*l.* 3*s.* 2*l.* to William Cooper, Westbourne; present age, 35, at time of marriage, 30; was an in-door tenant at 3*s.* per week; had saved 25*l.*, of which 20*l.* were placed out at interest; employer, Mr. Scardewille.

CLASS U.—To the cottagers who shall have the greatest number of stalls of bees, on the 1st of May, 1840. First, 2*l.*; second, 1*l.* 10*s.*; third, 1*l.*; fourth, 10*s.*—2*l.* to James Keates, Westhampnett, who had on the 1st of May, eleven stalls of bees. 1*l.* 10*s.* to Stephen Stillwell, Upmarden, who had on the 1st of May, eight stalls of bees. 1*l.* to Samuel Hall, Eastmarden, who had on the 1st of May, six stalls of bees. 10*s.* to William Cress, Pagham, who had on the 1st of May, six stalls of bees.

Also a premium of 2*l.* for the best written account of the actual experience of the candidate, of the best method of treating and preserving bees through the winter, with the sort and quantity of food required for the daily support of a hive—the best method of securing the swarms at the time of swarming (stating the number of swarms produced by each hive), the average weight of wax and honey from a certain number of hives—the greatest weight of honey and wax from a single hive—the number of hives lost by natural death in a given number of hives. A premium of 1*l.* for the second best account, containing the same information; the gifts of Mr. J. Hack, and Mr. E. Wyatt.—2*l.* to Stephen Stillwell, Eastmarden; 1*l.* to James Keates, Westhampnett.

MR. JAMES HACK made some observations, recommending that these treatises should be published, and circulated by general gratuitous distribution among the labourers.

The CHAIRMAN said he had already anticipated this subject; and the Royal Agricultural Society of England were disposed to receive these papers on the treatment of bees, and if found worthy, to publish them in their *Quarterly Journal*. It was then open to this Society to order a certain number of copies to be struck off, while it was in type, to be given away to the successful candidates, and to the members of this Society generally.

The Bishop of CHICHESTER remarked that this was one of the most extraordinary things he had ever heard in the whole of his life, that a labourer should receive a premium for writing an essay on the management of bees, and that this essay should be thought worthy of being printed, in order to show other Societies what they were doing, and that other labourers might profit by the hints thus thrown out.

The Dean of CHICHESTER said, that he thought that a toast at the present moment would not be unacceptable to his Grace, as a little relief after the very interesting and onerous labours which he had gone through. The toast he had to propose was the health of "The Earl of March." (*Loud applause.*) He was quite sure that name would call forth enthusiastic applause after what he had witnessed when the name of his noble father had been mentioned,

and knowing the admirable services which the Duke of Richmond had rendered to the county. It was a beautiful spectacle to see a nobleman of the highest rank and station seated in the chair, and the vice-chair filled by a humble labourer. He believed the Earl of March would ever emulate the hereditary excellence of his ancestors, and be what his father had been before, a blessing and a benefactor to the country; and after the sample and specimen they had already had of his conduct, they would hereafter, through a long series of generations, have to hail and bless the name of Lennox. (*Cheers.*)

LORD MARSH, in a neat and appropriate speech, returned thanks.

The CHAIRMAN, in proposing "Prosperity to the other Agricultural Associations of the county," said he was glad to see so many springing up around them. Chichester was the first place to set the example, and there were now institutions at Petworth, Arundel, and Fittle, to all which he wished prosperity; and he would couple with them the healths of Mr. Putland and Mr. Grantham, who were their visitors to-day. He thought he ought to claim some little credit at their hands; for Mr. Grantham was one of the very few who had been able to wrest from him the premiums for South Down sheep, at the Smithfield Show. He must therefore be understood as not drinking prosperity to Mr. Grantham's flock, but only to himself. (*Laughter.*) He trusted, however, that East and West Sussex would never be rivals in any thing, except attempts to improve that stock of sheep which all were anxious to keep up.

MR. H. HOLLIST said, he was obliged for the compliment which had been paid to him and to others, and to the Society which he represented. He did not rise to return thanks for the Arundel Society, which was too well and extensively represented here, nor for Mr. Grantham or Mr. Putland, but for that "baby" institution, as it had been termed, the Petworth Society,—a society which, he hoped, would yet be productive of much real good. At their first meeting, held recently, they had distributed 116*l.* in premiums among 68 successful candidates; and it was no small source of pride to himself that labourers in his employ had carried off five prizes, amounting to sixteen guineas, and that three of the men had been with his father and himself 130 years. He thought that for what they had already done they deserved some credit; and he hoped this society would continue to extend its kind and fostering and parental affection to the "baby" institution until it was out of leading-strings.

MR. GRANTHAM returned thanks for the East Sussex Association, as did Mr. BISHOPP for Arundel, remarking that he should be happy to become a subscriber to the Petworth Association, as well as to this and the Arundel Association.

CLASS W.—To cottagers resident in the following districts, whose cottages and gardens, consisting of not more than half an acre, shall be kept and cultivated in the neatest manner, and the general appearance of whose crops, making due allowance for the natural quality of the soil and the size of the garden, shall be most satisfactory to the judges appointed to view them. No persons shall be eligible for the following premiums who have kept their daughters from domestic service after they have attained the age and strength for such employment.

DISTRICT 1.—To cottagers resident in the united parishes of the City of Chichester, 1*l.* 10*s.*, 1*l.* 5*s.*, 15*s.* 10*s.*—1*l.* 10*s.* to Edmund Collins, Subdeanry; 1*l.* 5*s.* to William Watts, Subdeanry; 15*s.* to James Parson, Subdeanry; 10*s.* to James Farr, Subdeanry.

DISTRICT 2.—To the same in the parishes of Selsey, Westwittering, Eastwittering, Earnley, Birdham, and

Itchenor, 11. 10s., 11. 5s., 15s., 10s.—11. 10s. to George Faith, Bordon; 11. 5s. to James Wells, Westwitting; 15s. to Joseph Voke, Westwitting; 10s. to Elizabeth Cate, Westwitting.

DISTRICT 3.—To the same in the parishes of Sidlesham, Huxton, Donnington, Appledram, North Mundham, and Merston, 11. 10s., 11. 5s., 15s., 10s.—11. 10s. to Henry Chaffer, Sidlesham; 11. 5s. to John Norton, Donnington; 15s. to James Clauter, Donnington; 10s. to Edmund Mail, Sidlesham.

DISTRICT 4.—To the same in the parishes of Thorney, Bosham, Westbourne, Chidham, and New Fishbourne, 11. 10s., 11. 5s., 15s., 10s.—11. 10s. to John Hother, Chidham; 11. 5s. to Joseph Tuckey, West Thorney; 15s. to George Lashley, Westbourne; 10s. to Thomas Medhurst, Newfishbourne, (too old to work).

DISTRICT 5.—To the same in the parishes of Funtington, Racton, Stoughton, Up-Marden, East-Marden, North-Marden, and Compton, 11. 10s., 11. 5s., 15s., 10s.—11. 10s. to Thomas Thornall, Stoughton; 11. 5s. to John Allen, Funtington; 15s. to Thomas Moore, Funtington; 10s. to John Wilkins, Funtington.

DISTRICT 6.—No competition.

DISTRICT 7.—To the same in the parishes of Eastdean, Upwalham, Earham, Slindon, Madehurst, and Graffham, 11. 10s., 11. 5s., 15s., 10s.—11. 10s. to Charles Herrington, Slindon; 11. 5s. to Charles Chatten, Graffham; 15s. to Joseph Kent, Eastham; 10s. to Daniel Dean, Slindon.

DISTRICT 8.—To the same in the parishes of West-Lampnett, Tangmere, Boxgrove, and Walberton, 11. 10s., 11. 5s., 15s., 10s.—11. 10s. to James Keates, West-Lampnett; 11. 5s. to John Triggs, West-Lampnett; 15s. to Will Oakley, West-Lampnett; 10s. to William Shipman, Boxgrove.

DISTRICT 9.—To the same in the parishes of Oving, Aldingbourne, Yapton, Climping, Whyke, and Eastergate, 11. 10s., 11. 5s., 15s., 10s., John Gale, Oving.

DISTRICT 10.—To the same in the parishes of Bersted, Felpham, Middleton, Binstead, Barnham, and Pagham, 11. 10s., 11. 5s., 15s., 10s.—11. 10s. to Edmund Stanford, Pagham; 11. 5s. to William Farr, South Bersted; 15s. to James Richards, South Bersted; 10s. to Jacob Pollington, South Bersted.

DISTRICT 11.—To the same in the parishes of Havant, Emsworth, South Hayling, North Hayling, and Bedhampton, 11. 10s., 11. 5s., 15s., 10s.—11. 10s. to John Bettsworth, South Hayling; 11. 5s. to Charles Biles, South Hayling; 15s. to William Tickner, Warblington; 10s. to Thomas Garnett, Warblington.

During one of the intervals of pause the Bishop of CHICHESTER availed himself of the opportunity to propose the health of the "Lord Lieutenant of the county." His friends at the lower end of the room would, he was sure, do ample justice to this toast, to their feelings and to his own, and mark how strongly they felt the advantage of having such a nobleman to preside over them. On every occasion where good morals, good feeling, and religion were concerned, his Grace was ever the first to come forward and set an example of what was praiseworthy and what was good; and his endeavours had been as successful as they were praiseworthy. Of all the situations in which his Grace had been, or might be placed, there was perhaps none which would cause him more pleasure, when he reflected on it at a future date, than his presidency over this excellent Institution. The time might come, when his Grace too might be called to place his head on a bed of sickness, and how consolatory would it then be to him to think that he had done his duty to the poor on all occasions, whether in providing at these meetings, or at the Board of Guardians, where he listened to every poor man's tale, and by his advice and influence made himself beloved and endeared to all. The fulfilment of such offices as these was more to his honour than any other, however splendid their accompaniments. He hoped that his Grace might long be spared to labour for their good. (*Applause.*) The labourers, in rising to drink the toast, made the room ring with their lusty cheers.

The CHAIRMAN said he felt obliged to the Right

Rev. Prelate for the kind mention which he had made of his name. He was not astonished at the manner in which they had received his health, for he had well known and long experienced the favours of the farmers of Sussex. The Lord Bishop had in his speech made some allusions to the task which he had to perform in reading the premiums, and had hoped therefore he might be spared the labour of returning thanks. It was no labour to him to assure them that he felt deeply grateful for all the favours he had received from them. He had only that morning left the House of Lords at four o'clock, and had had but one hour in bed; but he knew it to be his duty to attend here this day, and nothing but ill health or some very unavoidable circumstance would ever prevent him from presiding over them, so long as they honoured him by placing him in the chair. The influence and benefits of this society would, he hoped, extend not only over the county they loved, but over the kingdom at large—for they met on these occasions not to dispute upon politics and things of that sort, but to co-operate and be of service to their common country. He could only say that although, from a long and intimate acquaintance with most of those gentlemen whom he now saw around him, he found he was not so young as he was twenty years ago, he was not yet prepared to be put on the shelf on the present occasion. (*Cheers.*) It was a duty he owed to himself, to the members of this society, and to the labourers whom they were so happy to see among them, to attend and lend his influence on such occasions as these. He should have time enough to sleep to-morrow; he should therefore continue to read the premiums; and he hoped they would not again request him not to do his duty, for that would be to say he was unfit for it. He would conclude by drinking health, happiness, and prosperity to them and theirs. (*Applause.*)

The CHAIRMAN, in proposing "Success to the Chichester Infirmary," said he had taken the liberty, a short time since, of addressing circular letters to many in the neighbourhood, and of canvassing personally the farmers whom he met in the market. If the farmers generally were aware that an increase of funds was necessary to carry on this excellent establishment, he was sure the means would be immediately forthcoming. He had been very successful on the day when he canvassed, having obtained about 159*l.* in donations, and upwards of 70 guineas in annual subscriptions. But there were many whom he had not had an opportunity of seeing; and he thought there could not be a better occasion than the present for mentioning the circumstance. He had seen to-day one gentleman whom he had overlooked, who, he knew, if he had met him, would have subscribed; and perhaps there were also many others. He believed all would admit that the funds of that institution were very well managed, and were ready to acknowledge the blessings it conferred on the labouring population. There were very many diseases which could not be cured in the cottage of the labourer, and could only receive proper advice and medical attendance, when separated from the family and under the immediate and constant eye of a surgeon. He hoped any individual present, who had not yet subscribed to an institution which was popular with the labourer and with all classes of society, would lose no time in lending it his support. He begged they would now drink to the health of "Drs. MacCaragher and Forbes, and success to the Chichester Infirmary."

Dr. FORBES returned thanks, but in so low a tone as to be inaudible at the middle of the room.

Mr. J. BARTON rose and spoke at some length on agricultural statistics, advocating some plan for the cultivation of waste land and the better employment of capital; but we were not able to catch the thread of his remarks, and on his making allusion to Mr. Villiers' motion on the corn-laws, the Chairman interrupted him by observing that he must know he was touching on forbidden ground by the introduction of politics. It was of the greatest importance that when

they met they should abide by their rules, and avoid the introduction of any discussion on political questions, which would set every one against the other. Here all parties might meet upon neutral ground. He was ready to admit the great services which Mr. Barten had rendered to this institution, and to all the useful societies of Chichester, such as the Savings Bank, the Lancasterian School, &c., &c.; but as their Chairman, and therefore obliged to act without favour or affection, he was obliged to state that he thought he was going rather beyond the bounds of their rules.

The CHAIRMAN then said he wished them now to drink to that profession which, in the days when England's sons were called to foreign climes to fight her battles, exerted themselves to the utmost to maintain the honour and independence of the flag they had sworn to uphold. The British army had distinguished itself during the war, in every battle and in every land; and the greatest pride of British soldiers had been that they had maintained the honour and glory of the British arms and the British flag. He never wished to couple any toast with a political feeling, but he would ask whether there was any man in the world, who, when the British army was drunk, did not naturally look to that great general that had led them on to constant and never-failing victory. He begged them therefore to drink "health and long life to the Duke of Wellington and the British Army." (*Immense applause.*) And may we never want a man with like ability, talents, courage, and coolness to lead our armies in the time of war.—Drank with nine times nine.

The CHAIRMAN said they would now drink to the sister branch of the profession. This was a maritime county, and they knew well the advantage, in time of war, of having their coasts well guarded by the wooden walls of England. The members of this profession had ever rivalled their brethren in arms in mighty deeds; and if they had not had so many victories at the close of the war to boast of, it was because, in the early part, they had swept the seas of every enemy. He would couple with the Navy Lord Minto, and as he saw opposite to him a gallant Captain of this service, he could not conclude better than by drinking to Captain Pilkington's very good health.

Captain PILKINGTON was highly flattered by this individual attack made upon him, which he could not but consider in the light of a high compliment from his Grace. He had fought and bled for his country, and, he trusted, had done every thing to maintain the honour of the British flag in every quarter of the globe; and now that the arms of peace were spread around them, he and the members of the profession to which he belonged would always be found ready to patronize the tillers of the soil from thence they drew their breath, and to advance every thing tending to the welfare of the labouring population.

The CHAIRMAN said the next toast on his list was not a political one, but one intended not only as a compliment to their representatives, but also to those who send them to Parliament; it was to "the members for Chichester and Western Sussex," whose names would be found among their list of Vice-Presidents.

The CHAIRMAN said he liked a convivial meeting as well as any one; and he thought he had proved this by never missing an opportunity of being present among them. But they should take care that the excitement which they occasioned did not lead to any excess, contrary to the example and precepts which they were desirous of setting before their labourers. He had one other toast to propose before he left. It was that of a Society of which he had the honour to be President, formed for the sole purpose of promoting the culture of the soil, &c. The Royal Agricultural Society of England had only been established about two years, and ranked already amongst its members most of the influential farmers of England, numbering nearly 3000 members. It would shortly hold its general meeting at Cambridge; and he now begged they would drink prosperity to this Society, coupling with it the health of their late Secretary, Mr. Shaw.

Mr. W. SHAW rose and said, My Lord Duke and Gentlemen, seeing that there are many other members of the Royal Agricultural Society of England present, I could have wished that some more able advocate had been found to respond to the toast; but I could not hesitate a moment in returning thanks on behalf of that society with which you have done me the honour to associate my name, and which will, I trust, become a national institution and a national benefit. It is but little more than two years since I suggested the establishment of that Society to your Grace, through Earl Spencer; I have taken a deep interest in it, and no exertion will ever be wanting on my part to promote its success. I will not, at a meeting constituted for other purposes, as this is, dilate upon the objects of that society; there is one, however, of the objects, forming a part of the agricultural constitution of that Society, perfectly applicable to the business of this meeting, namely, "To promote the comfort and welfare of labourers, and to encourage the improved management of their cottages and gardens." It is true that little or nothing has as yet been done but much time is needed to arrange the machinery for carrying on such a society! The labourers, however, have not been forgotten, as a proposition for dividing the country into districts for the meetings of the society was discussed at considerable length at a late meeting of the Council; the object of that division being, in a great measure, a preparatory step to facilitate arrangements for giving encouragement and assistance to the labourer.

Mr. HOLIST had permission from their Chairman to propose a toast which he had often given on former occasions, and which had always been received with cordiality and enthusiasm. They had been honoured to-day, for the first time, with the presence of ladies to see the agricultural premiums distributed; and he ventured to affirm that had a lady of the highest rank and first name been in the neighbourhood, it would have delighted her to see the happy countenances of the labourers, to see how they were relieved, and to see how her noble husband was received among his friends, and how her noble son was walking in the footsteps of his father. (*Applause.*) Their noble Chairman, after he had laid down the sword and assumed the ploughshare, sought among his companions in arms for a sister or a daughter who could make his home and his after days happy; and he had found one who set an example which every farmer's wife would do well to imitate. He thought there was no indelicacy in mentioning the circumstance, for his Grace had often alluded to it in public; she had nursed every child that she had had, and they had imbibed with their mother's milk their mother's amiable disposition and excellent character. (*Applause.*) He felt that he should be unnecessarily detaining them at this late hour of the evening, were he to enter into further preface; and he would therefore give "the Duchess of Richmond," and may every unmarried farmer soon have as good a farmer's wife as the Duchess of Richmond. (*Cheers.*)

The CHAIRMAN felt very grateful for this kind remembrance of the Duchess. If she had been in the country, she would have been very glad to be present, and to see these honest labourers in their round frocks, made happy by the rewards they had justly gained. His grace then passed an eulogium on the peasantry of England when they were called into service in the army during the war. The officers fought for fame, for ambition, for glory and honour, and if victorious, were looked up to with admiration and respect; but how many poor men were there who had equally distinguished themselves for coolness and courage and bravery, and whose deeds were perhaps never heard of. Their highest object, then, was to do their duty in the station in which they were placed. He would never take any credit to himself, unless they awarded it to those also who had so gallantly supported him. It was very gratifying to him to have the approbation of those who had known him so long, and who never knew him guilty of a mean or dishonourable action, or of obtaining a cheer by saying what he did not mean. Thanking them all for coming here to-day, he hoped he should

be spared to preside again over them, and that they would rally round him next year.

His Grace and the greater part of the company then left the room, it being nearly seven o'clock. A large party, however, remained, Captain Pilkington being voted to the chair, and maintained the conviviality and harmony of the meeting until a late hour.

ON THE PLOUGH.

(FROM A CORRESPONDENT.)

Among the various subjects brought under the consideration of the Royal Agricultural Society of England, that of the plough may be justly considered of great importance, and when taken in reference to its usefulness, power, and the principle of its construction, must occupy a prominent place.

The experiments tried under the superintendence of Philip Pusey, Esq., and reported by him in the third part of the first volume of the Journal of the Society upon the above subject, are not only highly interesting, but exhibit a clearness of detail, and an industry and discrimination in the investigation of the subject truly laudable.

It is therefore with considerable diffidence that the following objections are submitted to the candid consideration of the Society.

Objection the first.—That although great merit is due to the constructors of the various instruments, and great ingenuity has been displayed, it is nevertheless to be doubted, if any of these referred to in the above report are formed upon a true mechanical principle.

Objection the second.—That the extreme shortness of the said instruments is such, as to require an angle quite at variance (it is apprehended) with the most approved application of mechanical power.

Objection the third.—That should it prove that the form of the said instruments is less objectionable than is now supposed, yet the wrists, or mould-

boards, being fixed, are calculated to limit the usefulness thereof; a plough with sliding wrists, removable at pleasure, being preferable.

First as to form.—The wedge or inclined plane is considered to be the *true*^{*} principle upon which a plough acts. The curved wrists or mould-boards therefore, of those referred to, are less adapted to effect their object, than one having straight sides, because the angle being unequal, the power of resistance is differently affected; the fore part of an instrument with curved sides, may advance easily because the angle is small, but the hinder part having greater obtuseness, its power to overcome resistance is much deteriorated.

The curved sides of a wedge may probably succeed sufficiently where the resistance is greater at the point, than toward the heel, as in cleaving logs, where the first entrance is the prime difficulty, but when that is overcome, the natural adhesion of the leg being partly destroyed, the resistance consequently diminishes as the wedge proceeds; but it is to be questioned if this applies to the operation of a plough, where the land separated offers a more uniform resistance, and produces a pressure nearly equal at every part; the angle therefore of the inclined plane, should be equal also throughout its whole length, that the pressure, whether vertical or lateral, may be equally overcome.

This it is presumed can be best accomplished by an instrument whose parts, in contact with the moving land, diverge every way from the share point in straight lines.

Second as to length.—The friction of a plough is not to be estimated altogether by its length. Although it may long have been a received opinion, that the shorter the plough, the sooner the contact with the land ceases, and therefore the lighter the draught, but if the separated land is required to be moved a certain distance, the *angle* of the instrument must be as *necessarily* considered as the *length*.

The following four figures of wedges, or inclined plans, represent the mechanical principle of the plough:—

FIG. 1.



FIG. 2.

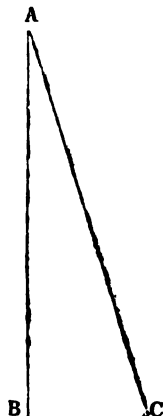
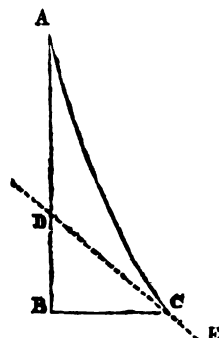


FIG. 3.



FIG. 4.



* In an essay on ploughs by H. Handley, Esq., to which a premium was awarded by the Royal Agricultural Society of England at the Oxford meeting in July 1839, the author, in reference to Kent ploughs,

observes "they are confined to their respective localities, while it is questionable whether they will be much longer retained there, it is certain they will not become general in other parts." The farmers of Kent, however,

Figure 1 is the section of a Kent turn-wrist plough. The apex of this figure A is supposed to be the edge of the coulter, the line A B the land side of the plough and measures 5 feet in length, the line A C is the furrow side, the line B C the width from the land to the furrow side 15 inches, which the plough excavates each time it crosses the field, removing the furrow from the land to the other side.

Figure 2 is a section of any other plough with straight sides, is 4 feet long from A to C, and 15 inches wide from B to C.

Figure 3 is 3 feet long from A to C, and 15 inches wide from B to C.

Figure 4 is 3 feet long from A to C if measured in a straight line, and 15 inches wide from B to C, the same as figure 3, and varies therefrom only in the curvature of the line A C.

The angle of inclination of the two lines A B and A C is, in figure 1, $14\frac{1}{2}$ degrees, in figure 2, 19 degrees, in figure 3, $23\frac{1}{2}$ degrees.

The angle of figure 4 varies in its parts, being about the same as figure 1 in the fore part, but becomes more obtuse toward the hinder part, and finishes at an angle of 50 degrees, as described by the two lines D B and D E.

It will thus appear, that although a plough formed upon the scale of figure 1 remains in contact with the land it passes through in proportion of 5 to 3, when compared with figure 3, yet as the angle of the former is $14\frac{1}{2}$ degrees, and that of the latter $23\frac{1}{2}$, it is thought that the difference of angle will fully compensate for the greater length, and if the lateral pressure which is estimated at two-thirds of all the resistance, is also taken into consideration, it is presumed the advantage will remain with the former. At the same time length may be carried to excess in either way; an instrument 60 feet long for instance, would require an angle of $1\frac{1}{2}$ degrees to remove a furrow 15 inches, yet there can be no doubt but that the cumbersome length would counteract every advantage which could be derived from so small an angle.

Again, an instrument of 6 inches length would require an angle of 80 degrees to remove a furrow to an equal distance, and consequently could scarcely be forced through the land, and one of 90 degrees or a right angle would have the furrow bearing perpendicularly to the line A C, and could not pass at all.

Thirdly, the Kent or turnwrist plough, which forms a double wedge, (acting first vertically, and secondly, laterally) has several advantages over one with a fixed wrist or mould-board, in laying the land level instead of being thrown into ridges, which on dry land can be of no use, but on the contrary has a tendency to run the land to weeds both on the back or centre furrow, of the ridge or stetch, and also in every open furrow; should the ridges be narrow it must be most inconvenient for the application of the broadsharing system of cultivation, which is considered indispensable for the destruction of couchgrass, and also of annual weeds; so much so, that few persons that have once experienced its value will be inclined to relinquish it. Should the ridges be four rods wide, the time lost in turning will be equal to one day in twenty, in an enclosure of 40 rods square.

When the turnwrist plough is required for the purpose of broadsharing, it is simply to remove the wrists and change the point, or shares, from a plough-

can very well tolerate the reproach cast upon them, coming, as it does, from a gentleman, who, compares the action of a plough to that of a screw. See "seventh paragraph" of his essay.

ing one of 6 inches, to a broad one of 16 or $24\frac{1}{2}$ inches, which can be accomplished in ten minutes, and the plough is ready for work.

In case the land should be very adhesive in character, or very hard from continued drought, the turnwrist plough can do its work, when a sawing, or wheel plough with short mould-boards, or wrists, would be utterly useless.

It has been considered necessary in the foregoing views to fix the distance at which the furrow should be opened at 15 inches, to give room for the land separated to turn properly; suppose the furrow to be 6 inches deep, and 9 wide. The first motion performed by a turnwrist plough is the vertical action which sets the severed furrow on edge by sliding it up the share and back, in a straight line, which inclines in an angle of about 15 degrees with the bottom of the plough; the second motion which is forced upon the furrow, is to place it alongside of those previously done, bottom upwards, which action is performed by the wrist acting laterally.

A short mould-board, or wrist, must have an angle of $23\frac{1}{2}$ degrees to remove the furrow 15 inches, in which case it approaches the furrow in such an oblique direction, that instead of rolling the furrow over as it ought to do, it presses it forward, as well as sideways, performing two motions instead of one, thus causing greater friction than is required, and fully accounting for the small light ploughs requiring a larger proportion of propelling force than could be otherwise accounted for.

We have now to consider the power required to propel the instruments respectively, and this it will be advisable to ascertain by a full trial.

It may be observed in conclusion that the primary object on the subject of ploughs, should be their efficiency, and that the power required to put them in motion is but secondary. Let the plough therefore, that performs its work best, have all the merit allowed it, which a principal point is justly entitled to, and if a turnwrist plough can be produced which requires no greater power to propel it than others, and which performs its work equally well, (which point it is apprehended is gained by some of the implements now in use among the Kent farmers) the advantages already enumerated are, it is hoped, sufficient to claim for it the notice of the Royal Agricultural Society of England.

ON THE WAGES OF THE AGRICULTURAL LABOURER.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In one of my former communications I asserted that the agricultural labourers on the continent were, generally speaking, not so badly off as their brethren in England; and that ever since the reign of Henry the Sixth, the condition of the rural population of this country has been getting worse and worse. I likewise said, that, with your permission I would, on some future occasion, prove the truth of these assertions.

It is completely mystifying the question, and is certainly unfair, to take the mere amount of money wages obtained by the foreign agricultural labourer, as I see done by "Justitia," without reference to the prices of the different articles of consumption. I, for one, should like to see our peasantry brought down (as it is termed, though the proper expression would be raised up) to the condition of the peasantry abroad. A few years back the government sent

a list of questions to the different British Consuls abroad, regarding the state of agriculture, and the condition of the population, in their different localities. Their answers were published by order of the House of Commons, and form a very useful volume. In giving the following extracts, I think it right to mention, that the answers, even from the same country, as France for instance, vary very much. In these cases I have, as near as possible, with regard to population &c., struck a general average of the whole country. It would appear then, that in France the common day labourer, receives on an average 4s. 9d. per week, and about $\frac{1}{2}$ more in harvest. The price of butchers' meat, is $\frac{1}{2}$ d. per lb., bread 1d. per lb., potatoes about 1d. the 3lb. In the majority of cases the labourer is lodged, and sometimes boarded, by the farmer. Drees cheaper than in England. Very few paupers.

In Prussia, the wages of a day labourer are about 3s. a week, with a dwelling free. A day labourer with his family may cost the proprietor about 14l. 12s. 8d. a year. He receives for thrashing corn from the 11th to the 16th bushel, it varying in the different districts. In harvest the wages are half as much again, &c. Pasture for a cow in summer, a small load of hay for fodder in winter, with free fuel. Prices of butchers' meat $\frac{2}{3}$ d. per lb. Wheat bread 1d. per lb. Rye bread $\frac{1}{2}$ d. per lb. Butter $\frac{1}{2}$ d. per lb. Very few paupers.

In Germany the wages of a day labourer are 7d. to 9d. a day. A free dwelling in a cottage, a cabbage garden, a piece of ground equal to $\frac{1}{2}$ of an acre for potatoes. Fodder for a cow, sixteen bushels of rye, eight bushels of wheat, fuel free, &c. In harvest the wages are 10d. to 1s. per day. Price of beef $\frac{2}{3}$ d. to $\frac{3}{4}$ d. per lb. Mutton $\frac{2}{3}$ d. to 3d. per lb. Wheat bread 1d. to $\frac{1}{2}$ d. per lb. Rye bread $\frac{1}{2}$ d. to $\frac{3}{4}$ d. per lb. Butter $\frac{1}{2}$ d. to 5d. per lb. Cheese 1d. per lb.; beer 1d. the quart; potatoes 1s. 6d. per ton; clothes cheaper than in England.

In Holland and Belgium, the wages of a day labourer average about 5s. 6d. per week; about 1s. 6d. per week extra in harvest; price of beef 3d. per lb.; bread $\frac{1}{2}$ d. per lb.; potatoes 1s. 8d. per 40lbs.

In Italy and the Austrian States the wages of a day labourer are 1s. per day, if board and lodging is given half is deducted; price of beef $\frac{3}{4}$ d. per lb.; mutton 3d. per lb.; pork 3d. per lb.; butter 8d. per lb.; cheese 8d. per lb.; bread $\frac{1}{2}$ d. per lb. The consul at Trieste concludes his report by saying that the poorer cultivators are undoubtedly better off, than the day labourers in England.

The above are the wages obtained by the inferior kind of day labourers on the continent. Shepherds, carmen, &c., are paid considerably more.

I do not think that I shall be accused of under-rating the wages obtained by the common English day labourer, in setting them down at 9s. per week ("Jestitia" says 8s.), from which we must deduct 1s. 9d. per week for cottage rent, (in nearly all places on the continent, the labourer is provided with a cottage free) thus leaving 7s. 3d. to provide himself with the necessities of life. Bread has been on the average of the last three years, $\frac{2}{3}$ d. per lb.; meat $\frac{1}{2}$ d. per lb.; butter 1s. per lb.; cheese 10d. per lb.; potatoes $\frac{1}{2}$ d. per lb.; so that although the money price of labour in England is considerably higher than in any country of Europe, yet the quantity of the different articles of consumption obtainable is less: thus—

In England the labourer can obtain for 7s. 3d. either 39lbs. bread; 11 $\frac{1}{2}$ lbs. meat; 7 $\frac{1}{2}$ lbs. butter; 8 $\frac{1}{2}$ lbs. cheese; or 174lbs. potatoes.

In France with 4s. 9d. per week, either 46lbs. bread; 13 $\frac{1}{2}$ lbs. meat; or 261lbs. potatoes.

In Prussia, with 3s. per week, either 36lb. bread; 16lb. meat; or 8 $\frac{1}{2}$ lb. butter.

In Germany, with 4s. 6d. per week, either 43 $\frac{1}{2}$ lbs. bread; 18lbs. meat; 11 $\frac{1}{2}$ lb. butter; 54lb. cheese; or 54 quarts beer.

In Holland and Belgium, with 5s. 6d. per week, either, 58lbs. bread; 22lbs. beef; or 460lbs. potatoes.

In Italy and the Austrian States, with 6s. (or 5s. 3d. per week, including lodging,) either 50lbs. bread; 21lb. meat; 8lbs. butter; 8lbs. cheese; or 168lbs. potatoes.

In taking the above countries I have not chosen them out from others, but have given every one from which there was any report.

With regard to the second assertion, viz., "that ever since the reign of Henry the Sixth (or I might have taken a still earlier period) the condition of the rural population of this country has been getting worse and worse," it is only necessary to give an extract from "Hallam's history of the middle ages," to put the question entirely at rest, he says:—

"There is one very unpleasant remark which every-one who attends to the subject of prices will be induced to make, that the labouring classes, especially those engaged in agriculture, were better provided with the means of subsistence in the reign of Edward the Third, or of Henry the Sixth, than they are at present. In the fourteenth century Sir John Cullum observes, a harvest man had four-pence a day which enables him in a week to buy a comb of wheat, but to buy a comb of wheat, a man must now (1784*) work ten or twelve days. So, under Henry the Sixth, if meat was at a farthing and a half a pound, which I suppose was about the truth, a labourer earning three-pence a day, or eighteen-pence a week, could buy a bushel of Wheat, at six shillings the quarter, and twenty-four pounds of meat for his family. A labourer at present, earning twelve shillings a week, can only buy half a bushel of wheat, at eighty shillings the quarter, and twelve of meat at seven-pence. Several acts of parliament, regulate the wages that might be paid to labourers of different kinds. Thus the statute of labourers, in 1350, fixed the wages of reapers during harvest at three-pence a day without diet, equal to five shillings at present; that of 23 H. VI., c. 12, in 1444, fixed the reapers' wages at fivepence, and those of common workmen in building at $\frac{3}{4}$ d., equal to 6s. 8d. and 4s. 8d.; the yearly wages of a chief hind or shepherd, were 1l. 4s., equivalent to about 20l.; those of a common servant in husbandry, 18s. 4d. with meat and drink; they were somewhat augmented by the statute 1496. I should find it difficult to result the conclusion, that however the labourer has derived benefit from the cheapness of manufactured commodities, and from many inventions of common utility, he is much inferior in ability to support a family to his ancestors three or four centuries ago. I know not why some have supposed that meat was a luxury seldom obtained by the labourer. Doubtless he could not have obtained as much as he pleased; but from the greater cheapness of cattle as compared with corn, it seems to follow that a more considerable portion of his ordinary diet consisted of animal food than at present. It was remarked by Sir John Fortescue, that the English lived far more upon animal diet than their rivals the French; and it was natural to ascribe their superior strength and courage to this cause.

* It will be seen that the data which Mr. Hallam takes as existing in 1784 is rather more favourable to the labourer, than if compared with the present time.

Thus, there can be no doubt but what the condition of the English Agricultural labourer has greatly deteriorated, and whilst they have been sinking lower into poverty and misery, the already wealthy aristocracy have become more wealthy, and there has arisen a middle class,—a state of society nearly unknown to the times of Edward the Third, the halcyon days of the English peasant, which class has been gradually increasing in wealth and power, whilst the men who have lent their strong aid towards its attainments, have sunk into such a state of wretchedness, that no change, whatever it may be, can make their condition worse.

I intended to have shown a few of the fallacies contained in a letter signed "Justitia," published in your paper a few weeks back, but I have already taken up too much of your valuable room.

May 20th.

JUSTICE.

Six,—On perusing the arguments of the opponents to agricultural protection, every disinterested person must be induced to believe, that the sole objects of the agriculturists, in desiring a continuance of that protection, is to keep up the price of bread, merely to starve the labouring classes, both agricultural and manufacturing, and even in opposition to their own interests; and, above all, when they have obtained their object, to dole out a miserable starvation pittance to the labourer weekly, in the shape of wages; and to add insult to injury by calling it a remuneration for his labour. This seems in itself so cruel, that it is not to be wondered at that the feelings of the humane, whether in town or country, acquainted or not with agricultural affairs, should rise indignant and exclaim—"Good God! are these things so?—and are the agriculturists striving for a continuance of this wretchedness?" The answer, of course, is given in the affirmative, and the silence of the farmer seems to admit the fact, that he is not able to defend his case.

But it should be borne in mind, that the generality of farmers are by no means a ready portion of the community. Their avocation requires their daily and hourly attention, and, although the *Mark Lane Express* has a most extensive circulation, still it may not be unfair to calculate, that certainly not one in fifty—nay, perhaps not one in a hundred—ever peruse its pages. Thus a large portion of them are not made aware of the charges laid against them; and most of those who are, consider them underserving a serious refutation, and suffer the matter to pass, as it were, unnoticed; and thus, through ignorance on one hand, and indifference on the other, they seem to stand convicted by their opponents, of all these enormities, without exception of persons or places.

The apparent difference in the amount of wages given in different districts to the agricultural labourer, and without any ostensible reason being assigned, has been productive of much animadversion, through the medium of your columns, and every person connected with agricultural pursuits can but feel surprised at the statements given by some of your correspondents, and would willingly doubt the truth, and have expected to see such statements contradicted. I will venture to affirm, that in no one place in the county of Kent have less wages been given than two shillings per day for years past. Upon this sum all calculations for piece-work prices are made, and I scarcely have known a man earn less than from 13s. to 16s. per week, when working by the piece, since the summer of 1823, bad weather excepted. I am now speaking of my own workmen,

and I am giving no higher wages than others around me. Some persons, I perceive, in the middle, eastern, and southern districts, where a proper rate of wages is given, have felt indignant at the charge, and have repelled the attack by stating the amount they are in the habit of giving. But, as W. S. very justly observes, that the proper prices given in some districts does not militate against its first position, viz., that there are districts, &c., &c., and the question which naturally arises is, that, as the farmers of those districts make as much of their produce as the farmers of the before-mentioned districts, why are they not to give the same rate of wages, and more, especially as they well know that the highest is barely sufficient? Surely the grave charge of giving able-bodied labourers no more than seven or eight shillings per week, if untrue, is worth the trouble of refutation, and let the public mind be disabused. However, in candour to them, we must put this construction upon their silence, that they are, for the most part, unacquainted with the charge, and that there is no doubt those labourers are paid, partly in kind and partly in cash. As to supposing the labourers in those districts are lazy, and therefore unworthy of higher wages, is both absurd and uncharitable. There are good and bad labourers in every district, but many more good than bad. As to Lincolnshire, there is no doubt, if everything is taken into the account, the wages given there are not greater than in several other counties. It does not appear that, in those districts, where such low wages are given, that it has been productive of any serious discontent, of any mutiny or disobedience to the laws. It is, therefore, inferable, that the apparent difference is made up to the labourer in some way or other, and that their condition is thereby rendered equal to those in districts where higher wages are given. It may, therefore, be asked, if the labourers are content, what right has any one to enquire as to the particular means employed to render them so? Admitting the case to stand so, still, as it appears to have been taken up through a good feeling towards the poor, a little explanation from those districts accused of giving inadequate wages might have prevented so much discussion. Now a custom prevails in some places, in giving the labourer a portion of his wages in kind (as it is often termed)—that is, in wheat or flour, in order to secure bread for the children; and this has been proved to be a salutary method; and, that it might not appear to be pointedly done toward some few individuals, it was made a rule in general, the same as in the administering parochial relief. Whether this or some such method prevails in certain districts does not appear, nor does the rhodomontade story of the Devonshire farmer, about drinking cider in harvest, afford any conclusive evidence that good wages are there given, even if the cider is taken into the account. The reason given by the agriculturists for a continuance of the protecting duties is, to be enabled to pay their workmen such wages as will afford them the means of living a little better than the Prussian serf. If the public agree in this, and make it one of the reasons for their permitting a continuance of this protection, have they not a right, in some degree, to enquire a little whether such wages are given, and without going at all into particulars, especially when such statements appear in the public prints as that given by the Rev. Mr. Fergusson?

Another argument, advanced by some in these low-priced districts, as a reason for giving such wages, is the superabundance of labourers in the market (as it is termed), and that the price of labour, like all other commodities, must be ruled by supply and

demand, and that every person has a right to get his labour performed at the lowest price he can screw the labourer down to. Away with such nonsense! is this the way to have industrious men, and to promote that good feeling that used formerly to exist, when every labourer held his employer's interest at heart? Certainly not! If this labour-market maxim prevails in large towns (London, for instance), where all are, as it were, strangers to each other, for Heaven's sake! banish such sophistry from the rural districts, and let man be the friend of man. The man who reduces the wages of the defenceless poor below, what is just and equitable, would pay no man to whom he is indebted if he could avoid it. Poverty will sometimes compel a man to do what he would not do under other circumstances, and even the poor themselves will excuse an employer, when they know that is the case; but this cannot be the case with whole districts. And is it the fault of the poor that they are not fully employed, and that this great resource of national wealth is so much neglected? Are they not made the victims of a bad policy, where they might become (if their labours were properly directed) the greatest blessing to the country? What nation can boast of a peasantry equal to them in industry? Witness those places where the allotment system has been introduced. Carry out that system to the greatest extent it is capable of, and you will hear little more of the labour market. If you cannot find employment for all, give to those you do employ what is just and equitable between man and man. That this is conscientiously done by thousands, there is not the shadow of a doubt; and why not by all? Has any satisfactory reason been assigned, why they should not? And if they have, why not explain? Is not the cause of the helpless poor the cause of every humane person in the kingdom? Or must no one open his lips in their defence? Justice must acknowledge this. Emigration, so much recommended by some, can never bring about the good that is sought, make it as extensive as you please. It is beginning at the wrong end; it might, perhaps, mitigate the evil a trifle for a short time, but it would never work a cure in their present condition. Improve that, give them the means, and their own energies will redeem them from pauperism. They would seek and obtain education for themselves in thousands of instances, and when they are educated (even in the plainest and most simple acceptation of the term), numbers will emigrate of their own accord, especially when they are made sensible of their own competency of improving their circumstances thereby. All this must be a work of time, but the lasting benefits it would confer on the whole community would be felt by, and receive the praise of, future ages, and might reduce the necessity there appears to be, for providing separate burying grounds to the extent now in contemplation.

June 9, 1840.

A YEOMAN OF KENT.

SIR.—I think both W. S. and Justice have successfully maintained their position, viz. "that there are districts where agricultural labourers' wages do not exceed eight or nine shillings per week;" this assertion was made, I believe, only with regard to the cheaper counties; but what was my astonishment, when passing through some parts of Buckinghamshire within thirty miles of London a short time since, to find that in that neighbourhood where meat, bread, and indeed all the necessaries of life are as dear as in London, (and fifty per cent. dearer than the counties of Somerset, Dorset, and Devon,) that labourers were only paid ten shillings per week.

Let me ask those advocates for continued oppression how is a man, his wife, and three or four children, to be maintained on such a sum? for mark me, there is no cider made in this neighbourhood with which to wash out their starving bellies, so much boasted of by a Devonshire Farmer. I dare say some philanthropic soul will furnish me with a solution of this enigma; but I confess that at present I am at a loss to ascertain how, after deducting, say four shillings a week for rent, clothes, soap, medicine, &c. &c., the remaining six is to furnish for five persons, three meals per day, making together 105 meals per week, which amounts to not quite three farthings per meal; perhaps I shall not be believed I say that I have boys in my employ who could eat nearly that amount (viz. six shillings per week) in bread alone, provided they had nothing else.

I will not trespass longer on your valuable columns merely than to observe that though no blame attaches itself to the farmer in paying these wages, as he must purchase labour like everything else at the cheapest market, and the present rate of wages will doubtless continue until the system is changed, yet I think a man who dwelling in plenty can sit down and write such stuff as has appeared in your paper lately, must be unfeeling indeed, and the severest punishment I could wish him would be that he should live for twelve months on three farthings per meal. I remain, Sir,

A SUBSCRIBER.

Bromley New Town, Middlesex, June 8th.

THE FARMERS' AND GENERAL FIRE AND LIFE INSURANCE INSTITUTION.—

We are requested to state that in addition to the noblemen and gentlemen, whose names are given in our advertising sheet, His Grace the Duke of Rutland has consented to act as Honorary Director for this Institution.

A CHALLENGE.

SIR,—On reading your report of the Exeter Agricultural Society's Show on Monday, June 8th, I see Sir Thomas Ackland stated that his friends Mr. John Gould and Mr. Wippell declared to him they were not satisfied with the Devon stock exhibited at the Oxford show; Sir Thomas also states that one man from Somerset carried off prize after prize with animals that grazed on the breezy hills of his county. On that point I beg to say he has been misinformed, for all the animals with which I gained prizes were bred by myself, and never saw a breezy Devonshire hill, except the old bull, which was bred by the late Mr. Wm. Davy, of Flitton, North Moulton.

Now, sir, I beg to offer this challenge: I will show fifty or eighty head of Devon cattle, all one man's property, for fifty or eighty guineas, against Sir Thomas Ackland, if he is a breeder of such, Mr. Gould, or Mr. Wippell, any day within one month. I will also go farther, to give the Devonshire breeders time to improve; I will undertake to show 100 head of Devon heifers, cows, and bulls, at Michaelmas, 1842, against any man in Devonshire or all England, for 100 guineas each, all to be bred by, and the property of, one person; the judges to be chosen in the usual way. Any man that will accept this offer, to give me notice in three months from the date hereof.

I am, Sir, your obedient servant,

MATTHEW PAULL.

Compton Pauncefoot, June 20th, 1840.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JUNE.

In taking a retrospective glance at the progress made in the growing crops, and the great improvement apparent in the whole vegetable creation, we conceive there never was a period, within the memory of the oldest man living, in which such surprising, and at the same time truly beneficial, changes have been effected in the same space of time, as has been the case since the date of our last report; and, sure we are, that all engaged in, or in any way connected with agriculture, will bear us out in our observations, when we assert, that with some few exceptions on the more backward soils (exceptions invariably found at all corresponding seasons of the year), the young wheat plants have scarcely ever experienced such firmness and rapidity of growth, coupled with so large a number of healthy off-shoots, as has been observable of late; while the atmospheric temperature has proved unquestionably the most propitious to vegetation in the most unlimited sense of the word, that could possibly have been experienced. These remarks, it must be understood, are not the offspring of theory: but are deduced from the opinions of practical men, and, it may be added, the majority of the most eminent and extensive grain producers in the kingdom; as well, in fact, as from personal experience and observation. Hence, we have to congratulate our farmers upon the prospect of the wheat harvest being commenced at least a fortnight earlier than was that of last year, the plants of that valuable description of grain being already in full bloom in several parts of the western, southern, and midland counties, whilst north of the Humber they are rapidly coming into full ear.

With respect to the probable produce, it must be honestly confessed we are not so sanguine in our expectations as some persons have been led to imagine, since it must be borne in mind that the autumnal seed time was, perhaps, from the unusually large quantity of rain which fell in November, together with the necessary postponement of the sowing the heavy wheats till the usual period is generally considered at an end, have not only tended to greatly perplex the agriculturists, but must inevitably have had a by no means wholesome effect upon the young wheats. Still, however, we trust with the aid of fine weather, that the yield will in most instances, come up to a fair average; beyond which, our expectations do not extend. As to barley and oats, we regret to say that the accounts which have reached us from Suffolk are not very flattering; nevertheless the crops of that variety of corn, as also those of oats, are progressing rapidly toward maturity. Both beans and peas appear to have suffered from the long continued drought, at the time planting usually takes place; hence partial failures have taken place.

The hay harvest has, at length, become pretty general, and stacks are rising rapidly in good situations; but owing to the thin swathe it is expected to fall considerably short of that of many preceding seasons, in consequence of which, old qualities are held at high prices, without much probability of any decline taking place for some time hence.

In our grazing districts, a great number of losses have taken place, arising from the so long com-

plained of epidemic, notwithstanding the many remedies which have been adopted by our graziers, many of which, we are happy to state, have proved successful, particularly as relates to those suggested through the medium of the Royal Agricultural Society.

From most parts we have received intimation of the produce of the old wheats having proved somewhat on the increase, and of very superior quality, while the samples brought forward in the various markets of consumption have exhibited a great improvement. Good parcels have commanded a steady inquiry at, in most transactions, an advance of fully 1s. per quarter; and there has been a decidedly better feeling in the inquiry for the middling and inferior descriptions. The mating season having been brought to a close, very little business has been doing in barley, yet the prices have been tolerably well supported. Oats, on the contrary, have gone off steadily, at about previous rates. In beans and peas little doing.

Throughout Ireland and Scotland, the weather has continued fine, and the wheat, barley, and oats have experienced very little interruption in the shape of superabundant moisture. All farm labours are well in their place, and the intelligence is, on the whole, highly satisfactory.

The following is our usual statement of the supplies and prices of fat-stock, exhibited and sold in Smithfield Cattle-market, during the month.

The supplies of beasts have consisted of 10,429; of sheep and lambs, 110,468; of calves, 980; and of pigs, 1284; while the prices have ranged as follows:—Beef, from 3s. 2d. to 4s. 10d.; mutton, 3s. 6d. to 4s. 8d.; lamb, 5s. to 6s. 4d.; veal, 4s. 4d. to 5s. 4d.; and pork, 4s. to 4s. 8d. per 8lbs. to sink the offals. All kinds of prime stock have sold briskly, at improving rates, but in middling and inferior kinds little has been doing. From Scotland the receipts have amounted to 420 horned and polled Scots; from the Isle of Wight, 600 lambs, the whole of which have come to hand in good saleable condition, and produced fair currencies.

A STATEMENT AND COMPARISON of the SUPPLIES and PRICES of FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, June 24, 1839, and Monday, June 22, 1840.

	At per 8lbs. to sink the offals.			
	June 24, 1839.		June 22, 1840.	
	s. d.	s. d.	s. d.	s. d.
Coarse & inferior Beasts	2	8 to 2 10 ..	3	4 to 3 8
Second quality do.	3	0 3 4 ..	3	8 3 10
Prime large Oxen.....	3	8 4 2 ..	4	2 4 6
Prime Scots, &c.....	4	4 4 8 ..	4	8 4 10
Coarse & inferior Sheep	3	4 3 6 ..	3	4 3 8
Second quality do.	3	8 3 10 ..	3	10 4 0
Prime coarse woolled do.	4	2 4 6 ..	4	2 4 6
Prime Southdown do..	4	8 5 0 ..	4	6 4 8
Lambs	5	2 6 4 ..	5	10 6 0
Large coarse Calves ..	4	0 4 6 ..	4	4 5 0
Prime small ditto.....	4	8 5 0 ..	5	2 5 4
Large Hogs.....	3	10 4 6 ..	4	0 4 6
Neat small Porkers ..	4	8 5 0 ..	4	8 4 10

	SUPPLIES.	
	June 24, 1839.	June 22, 1840.
Beasts.....	2,602	2,472
Sheep and Lambs....	27,420	26,990
Calves.....	270	170
Pigs.....	507	633

As is almost invariably the case during the sum.

mer months, a considerable falling off has taken place in the arrivals of country slaughtered meat up to Newgate and Leadenhall markets, they having comprised only 90 carcasses of beef; 380 ditto of mutton; 140 ditto of veal; and 800 ditto of pork, with which the trade has been firm.

ESSEX.

We have this month to report the prospect of as fine a crop in our county, of every description, as can be reasonably wished. We believe the land will do its best, from the succession of the most genial weather possible. The wheats have come into ear rather short, which, in some measure, may be accounted for by its standing thicker on the ground than usual. We may say of every description of grain, as well as of grass, mangold, turnips, &c., we never, on the whole, saw them more promising. Haying has commenced partially in our district, and the swaths have fallen heavily; next week there will, no doubt, be a general beginning. We shall not be at all surprised at hearing of new samples of corn being in the market previous to the 1st of August, as, if the weather should continue warm and fine, we may calculate upon beginning by the latter end of July, some of our pieces, which are in bloom. Oats are rapidly coming out into ear, as well as barley, peas, &c. On the latter, blight has made its appearance, but we do not anticipate any very great injury, as the blossoms are too far advanced. A considerable quantity of nitrate of soda, as well as nitre, has been used on the wheat as a top-dressing, and in its effect is very visible, the blade appearing very green, and the wheat-ear, in some cases, at least twelve inches higher than where the dressing was not given; having applied it on twenty acres this season, we shall be curious to know whether the yield of grain will be equal to the increase of the straw, and intend thrashing out the dressed and undressed in the same field, to get at the result. If it turns out as superior, as its appearance warrants us to expect, we shall adopt it as one of the cheapest manures attainable by the farmer. Sheep-shearing is drawing to a close with us, and the clip, we imagine, will be heavy: a poor remuneration is held out as yet to the seller. We are rather anxiously waiting the show of the English Agricultural Society, at Cambridge, as promising a rich treat, and we would advise every farmer who can spare the time to avail himself of the opportunity to see one of the finest and most interesting exhibitions he ever witnessed.

SUFFOLK.

In forwarding a report at this season of the year, of the state and prospects of the growing crops, it is

necessary to use great caution, as from the appearance of the crop, and the state of the weather from now until the fruits of the earth are in-gathered, the prices of the various grain are estimated in a great measure, particularly with regard to the staff of life, or perhaps we ought to have said from what it is produced, wheat. We are happy to have to report of this county that the prospect is good; we see no fear to anticipate less than a fair average. Indeed, if we were to judge only from the appearance in passing, we should be induced to say they are beyond an average aspect, but on examination, it is found in the majority of cases most kinds of crops are *road proud*. Mangel wurzel plants particularly well, and the breadth prepared for that valuable root is yearly increasing. Swedes are also sown under very auspicious circumstances; we allude to the fine tilth into which the attentive farmer was enabled to get his land, but we hear great complaint of their being taken off by the fly; there is yet good time to sow with hybrid, which is nearly as valuable as the Swede, also with the various kinds of later or common turnip. The clovers are generally very short, so are the meadows; therefore it behoves the provident farmer to try to make some provision for winter provender. Potatoes are this year the lightest we have remembered them for several years. There are more experiments tried this year with artificial manures than was ever before known. Nitrate of soda we think is the favourite at present, as that appears to cause improvement on all descriptions of land; whether that improvement in the bulk of straw will also be realized in the increase of grain, is yet to be proved; we anticipate it will, and that it must prove an ultimate benefit to these who use it. The result of the majority of these trials we hope, will be communicated through the same source by which the parties were induced to make them, viz.:—the farmer's clubs which are springing up and continuing to increase in this county in every direction. Of the utility of farmers' clubs, I think the following anecdote is an illustration. A gentleman farmer (and a first-rate practical agriculturist too) on being solicited to join a farmers' club lately established in his neighbourhood, on learning what was the intention and the benefits to be imparted by farmers' clubs, thought to himself, I am one of the best farmers hereabout, and what can I learn by attending a farmer's club; no one can tell me more than I already know about farming in all its bearings, but I will go and hear what they say and do. He attended once, and again, and again, and at the annual meeting made the above statement also, and that he never had attended one meeting without learning *something*, and said, he now thought himself but a *child* in the affairs and knowledge of agriculture.—June 19.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

RET福德 FAIR, June 18.—This fair for the sale of cattle, sheep, and horses was held yesterday, and in every respect far exceeded the most sanguine expectations of its most strenuous advocates. The difficulties attendant on the establishment of any new fair is sufficiently obvious, without our taking upon ourselves the task of so doing, but the inhabitants of Retford and the surrounding country never anticipated that such could be surmounted with such a little trouble, and its ultimate success thus placed beyond the possibility of any reasonable doubt. We are aware that very contradictory opinions have been held as to the exact period at which it should be held; but from the large attendance

of buyers and sellers yesterday, and the large quantity of stock and sheep exhibited, it was sufficiently apparent that a fair was necessary, and that the exact period of holding it was well-timed, and very judiciously chosen. The fair was held as advertised, on the Spa Common, which at an early hour had a very busy and imposing appearance. Upwards of 650 sheep were penned, the greatest part of which were either fat, or in good condition, nearly the whole of which found purchasers at remunerating prices. With respect to the number of cattle about 500 head were exhibited, amongst which, however, there were not many fat ones. Good fresh stock realized high prices, and nearly all sold. We had

many buyers from a considerable distance, all, or most of whom, expressed their astonishment at the importance which this fair, at its commencement, had assumed; and we are quite sure that the residents of the town were highly gratified at the prospect of its establishment, which must ultimately tend to the benefit of the inhabitants generally, of this highly important and well-cultivated district.

BRADFORD FAIR.—The show of horned cattle has been less than usual at this fair, which commenced on Wednesday. There were some good ones shown, and present calvers brought high prices. Lean cattle in considerable numbers, and were heavy on the market. There was an unusual show of good draught horses, and many changed hands, but the reduction in price from last summer is very considerable.

ROSSLY HILL FAIR.—This fair was a very good one, and the show of horses excellent and numerous. Light horses, fit for hacks and coaches, were in great demand, and brought good prices; heavy draught horses were a drug, and not much business done amongst them. The show of cattle was limited, for milch cows a great demand, and high prices obtained; beasts of all descriptions sold well.

THE AYLESBURY ANNUAL CATTLE FAIR on Monday last was well supplied with Horses, but none of a superior description. The sales were dull, and at prices corresponding. The supply of Sheep and Lambs was large, and met a ready sale from London buyers, to which place these were sent per railway.

THORNE JUNE FAIR.—There was a good attendance of buyers, and a tolerably good show of cattle, especially of lean stock, most of which was disposed of at prices a shade under those that have ruled at most of the late fairs. The show of horses was very indifferent, and altogether unworthy of notice.

TRINITY MUIR FAIR.—This great market commenced on Wednesday last, with the sale of sheep, the demand for which was brisk, and nearly all sold at high prices. Three-year-old hill wethers brought from 18*l.* to 22*l.*; fat do., from 27*l.* to 32*l.* 10*s.*; and ewes and lambs, from 11*l.* to 21*l.* per score. There was a fine show of cattle on Thursday, and much business done; but the supply was more than equal to the demand, and a large number of beasts was left unsold. Prime fat brought 8*s.*; current, 7*s.* 6*d.* per Dutch stone, to sink offals.—Small two and three-year-old stots and queys brought more money than heavy stock, according to weight and quality. The best three-year-old polled stots, twenty in number, sold by Mr. Mustard, of Leuchland, brought about 19*l.*, and the best two-year-olds about 13*l.* 10*s.* per head. Cows near calving were in good demand, and brought nearly former prices. The drave beasts from the northern counties brought 12*l.* to 16*l.*, but the dealers complained that they were losing money. The market, upon the whole, was much duller than expectation had conceived, and there were few buyers from the south. Prices were considerably lower than at some of the recent fairs in the neighbourhood.

MR. GEORGE TURNER'S ANNUAL SALE, &c., OF RAMS.—The annual sale, and letting of rams, the property of Mr. George Turner, took place at the residence of that gentleman, Barton, Exminster, on the 9th inst., and was largely attended by gentlemen and yeomen, from every part of this, as well as from the adjoining counties. Mr. Hussey was the auctioneer, and both sale and letting spoke most honourably for the judgment of Mr. Turner, in his selection of stock, as also that we think the result must have been highly satisfactory to him. The following may be given as instances of the prices obtained.—**Son.**—Ram, No. 36, to Mr. Tremayne, for 22*l.* 1*s.*—No. 40, to Mr. Samuel Pridham, Cheriton Fitzpayne, for 19*l.* 19*s.*—No. 39, to Mr. Thomas Melhuish, Poughill, for 14*l.* 14*s.*—No. 35, to Mr. Tremlett, Newton St. Cyres, for 13*l.* 2*s.* 6*d.*—No. 27, to Mr. George Mortimer, Ide, for 9*l.* 9*s.*—**Let.**—No. 45, to John Nott, Esq., Swymbridge, for 25*l.* 4*s.*—No. 1, to Mr. Pridham, Cheriton Fitzpayne, for 21*l.*—No. 6, to Mr. John Turner, Cheriton Fitzpayne 13*l.* 2*s.* 6*d.*—No. 7, to Mr. Chapple, Ottery St.

Mary, for 11*l.* 11*s.*—No. 2, to Mr. J. Anning, Kenn, for 10*l.* 10*s.*—And as a summary of the whole, we may state, that 31 Rams were sold for 278*l.* 15*s.* 6*d.*; and 8*l.* let, for 118*l.* 13*s.* The total proceeds being 397*l.* 8*s.* 6*d.*

ILMINSTER.—SHEEP-SHEARING.—The Founts annual sheep-shearing match came off with great spirit on Tuesday the 3d ult., and very good workmanship was displayed in that department of labour by the many competitors for the several prizes offered. The names of the successful candidates and the premium distributed are as follow:—

	£	s.
1st.—Thomas Slade, Beer Crocombe	3	0
2nd.—John England, Shepton, Beauchamp	2	0
3rd.—John Collins, Kingsbury	1	0
4th.—Charles Crabb, Tharbeer	0	15
5th.—Daniel Crabb, Beer Crocombe	0	10
6th.—John Tett, Hulsh, near Crewkerne	0	7
7th.—John Thorae Paul, Witherhay	0	5
8th.—John Barrett, Hambridge	0	3

After the labour of the day was over, the company and their friends retired to the Plough Inn, Founts Cross, to partake of a bountiful repast in the shape of a good substantial English dinner, provided by Mr. England. Mr. Thomas Stephens, of Atherston, officiated as chairman, and Mr. Phelps as vice-president. After the cloth was removed, the chairman rose and observed, that the association whose interest they were that day met to promote, had for its object the welfare of the agricultural population at large; it held out encouragement to the labourer, and ensured more attention to the manner in which the labour was performed; thereby the master would ultimately be much benefited by the means they were adopting. He was pleased with the day's proceedings thus far, and he hoped the remainder of it would be spent in the greatest harmony; he would therefore give the healths of her most gracious Majesty the Queen and Prince Albert, which were responded to with due honours. The Army and Navy was then given by R. Edmonds, Esq., and acknowledged by Messrs. Lang and Cannicott. Success to Agriculture, by Mr. Dibble, who, as one of the oldest agriculturists in the county, rejoiced that agriculture was brought to such a state of perfection, although he had no doubt but it could be much improved; when he saw such men as the Duke of Richmond, Earl Spencer, and others, patronizing these societies, he fully believed that constant improvements would be made. The umpires, Mr. J. Cannicott, Mr. Wallace, and Mr. Humphry, were then proposed and drank with great applause. Mr. Wallace responded to the toast, and said that the task which they had engaged to perform was not at all times a pleasant one, but it was one which they had performed, strictly adhering to the principle of duty and honesty. He hoped the society would flourish, and he should be happy, in conjunction with his fellow helpers, to render any assistance in his power at any future period. The health of the Chairman was then given by R. Edmonds, Esq. The health of Mr. Phelps, Vice-President, was also given with nine times nine. "Trade and Commerce" was proposed by Mr. W. Stephens. Mr. S. Stephens, of Ilminster, in acknowledging the compliment, observed that he delighted to identify himself with agriculturists, because he thought that the commercial and agricultural interests were so closely connected that they must stand or fall together. The health of Mr. England, the landlord, was then drank, who very appropriately acknowledged the toast and returned thanks. During the evening many other toasts were drank and duly responded to, which being interspersed with several songs suitable to the occasion, the enjoyment of the evening passed over in the most pleasant manner. Our limits will not allow of our giving a more lengthy report of these interesting proceedings. We would just observe that the amount of subscriptions raised by the company then present authorizes us to state the committee will be enabled to offer much higher prizes for the candidates at the next annual shearing match.

REVIEW OF THE CORN TRADE DURING THE MONTH OF JUNE.

Since our review for the month of May, of the state and prospects of agriculture during that month, the anti corn-law advocates have had another discussion on that most important subject, in the House of Lords, and certainly no new arguments in favour of the repeal of those protective enactments, so valuable to the united interests of all classes in the British empire, were produced by the different speakers on that occasion.

The old antiquated doctrine of reciprocity in trade, again formed the chief nucleus for their arguments, and the whole performance ended, from necessity, in a perfect failure, even in stage effect. The old complaint that *Foreigners, the producers of grains, are prevented from using our manufactures by our system of supplying our own population with all the necessities, and with many of the luxuries of life*, has been completely removed by the experience of a virtual free foreign corn trade during the last two years, for, so far from that freedom having been, in the slightest degree, beneficial to the manufacturing and commercial classes, its consequences have been perfectly the reverse. The partial failure in our home crops, during the last two corn seasons, has occasioned a correspondent failure in the home consumption of British manufactured goods, and during the same period, there has been certainly no increase in the exportation of these articles, to those foreign countries, from which we have lately been compelled to draw supplies of grain, to make good the deficiency in our growth. Even the demand for the United States of America, has received no spur from this unfortunate state of our affairs at home. The heavy debts due for several years now, by American merchants, to those of the United Kingdom, have not been in the smallest degree alleviated by the large importation which has occurred, from these causes, of American flour, nor was it likely that the American agriculturists would have parted with their property for any such patriotic purposes. Like the rest of mankind, they require payment for the surplus of their crops, of a more substantial description than the exchange of it for commercial bad debts; and should these debts not be provided for, from some other more effectual and more reasonable sources, they must remain unpaid, as they are now, until the end of time. Perhaps on no former occasion, have more strenuous efforts been made to embark the feelings, and the passions, of the operatives, and artisans generally, in favour of the repeal of the corn laws, than have been resorted to on this occasion; but the schoolmaster is certainly abroad amongst them, and these classes know too well their own affairs, and the real foundation of their prosperity, to enter into a conspiracy against their future well being. To reduce the first cost of manufactures at home, intended for exportation, the reduction of the wages of labour is the first thing which is absolutely necessary for the completion of this object. Wages, however, cannot be reduced until the present prices of the necessities of life be previously reduced, which can alone be accomplished by an importation of foreign grain, far larger than the actual consumption requires. The schoolmaster has taught the operatives and artisans of all grades and denominations, to en-

quire into the benefits which they are to receive from an increased foreign trade in manufactured goods, arising solely out of the reduction of their wages, and they cannot discover any advantage to themselves as likely to originate from the circumstance. On the contrary, those who are principally employed in the manufacture of the various articles, which the home consumers require, know full well that their prosperity mainly depends on the state of the home markets, and that by the ruin of agriculture the value of these markets would be so materially depreciated, that the foundation stone on which they at present gain their living, would be for ever removed from under them. One of the delegates of the anti-corn law association, proposed, a few weeks ago, to call out a meeting in Palace Yard, of the working classes, but the steam could not be raised for such an object. They may, to be sure, *call spirits from the vasty deep*, but, the old question may be asked, *will they come?* Not they indeed. They no doubt ought to be obliged to the society, for pointing out to them grievances and complaints which they do not feel, though perhaps they ought to feel them, but for the removal of which, they are not prepared to sacrifice one day's labour, and the wages consequent on its performance. Really the ambition of some of the master manufacturers is as unbounded as is their philanthropy. Since 1816, the consumption of cotton wool has increased four-fold, and yet they remain unsatisfied. They cannot say that population has increased proportionably. Every corner is however searched by them for the discovery of complaints against the present state of society, and the agricultural labourers have received their full share from this fund of compassion. These labourers are generally satisfied with their condition in life, and in many counties they have learned, not without much surprise, that their remuneration is too low. In Essex, where the best qualities of wheat are produced, this is more particularly the case. The wages of agricultural labour throughout the whole of that rich and important county are considered high enough by those who receive them. The best agricultural labourers there receive not less than 15s. per week, and none of them at all conversant with the subject have under 12s., and this too in the neighbourhood of the most populous city in the universe. In addition to these wages nearly the whole of them have a cottage, and a garden, the surplus of the produce of which is sold, for the benefit of these labourers, in the public markets. Since 1830 no complaints have been made by this valuable class of society. There have been no fires and no destruction of property in the rural districts, since that period, and this most fortunate change in their conduct arose solely out of the modification of the corn laws, which was effected by the Duke of Wellington two years before that year. These laws were in 1828 rendered more protective to the general industry of the people, and an almost unbounded quantity of nearly universal prosperity has resulted from this alteration, effected by that administration, of which his Grace was then the head. The violent alteration in the currency had, during

the previous eight years, entailed universal distress throughout the empire, and it was found necessary to protect internal industry, as being the only remedy for the then existing evil. Since then there has not been any general distress amongst any of the productive classes, but on the contrary their condition in life is improved, and their contentment and satisfaction is annually increasing. The capital of farmers embarked in the cultivation of the fields exceeds two hundred and fifty millions sterling, and a seven years' lease is scarcely sufficient for the restoration to them of the property thus employed in field tillage. We say nothing of the landlord's property in the farms, which amounts to two or three thousand millions sterling; but surely this mighty interest is not to be, on slight grounds, interfered with? Property of this immense amount is not to be sacrificed to theory, nor is agriculture to be put in jeopardy, even should the placing of larger sums of money in the hands of the master manufacturers, than they now possess, be the consequence. The proprietors of the national debt, the capital of the farmers invested in tillage, the value of the land itself, the wages of the agricultural labourer, and those of the operative manufacturers themselves, are certainly far more valuable to the empire in general, than the profit to be derived from the clothing of the labourers in the fields of Germany can by any possibility be. With the exception of very few indeed, the manufacturing, and generally the commercial classes, are perfectly satisfied with things as they at present exist. The state of society is so artificial, that the different interests, of which it is composed, are mainly depending on each other for support. The prosperity and the adversity of any member of this arch of society affect the whole body. To reduce the agricultural interest from its just position in the empire, would soon afterwards be attended by the most unfortunate consequences to commerce and to manufactures, more particularly to the operatives in their important departments of industry. The repeal of the corn laws would not only reduce most materially the home consumption of manufactured goods, but it would eventually also increase the number of commercial, mining and manufacturing labourers, by the addition to their body of thousands of families, who, under the present system, receive abundance of productive labour in the fields, but who, should the corn laws be repealed, would be compelled to seek for employment in other quarters at an immense reduction of wages. By a reduction of wages obtained by means of this description, no doubt some of the master manufacturers might, for a few years, increase the consumption of British made goods in the foreign markets; but this source of profit contains within itself materials for its own destruction; for, by the quantity of land which the repeal of the corn laws would throw out of cultivation, and by the very unnatural reduction which the same act would occasion in the wages of labour, provisions of every sort would become so high in their relative value with the means of the consumers to purchase them, that universal misery would, in a few years afterwards, be the certain result of this act of insanity. The school-master, however, has been abroad for years now, amongst artisans and operatives, and to attempt to muster them in Palace-yard, for the adoption of measures, and for passing resolutions destructive to their future prosperity, would be paying a very poor compliment to their intellects,

and to the progress which they have made in every department of practical knowledge. They are perfectly aware that the present favourable appearances in the fields are of far greater importance to their future prosperity, than any meeting in Palace-yard can be, and it is a very fortunate circumstance that, since our June publication, the weather has continued to be as auspicious to the growing crops of every description as it possibly could have been, and there exists the greatest probability of the harvest proving a much more abundant one than we have enjoyed for several years past. The prospects of the wheat crop are as favourable as they can be, nor can they now be altered by anything short of a wet reaping season, which will commence in the third week of July, and in every probability will be general before the close of the present month. There are complaints of a partial thinness in the winter sown wheats, in several of the southern districts, and also in Suffolk. In the other three home counties we are warranted in asserting that there exists the greatest probability of a most abundant wheat crop, and in all the wheat districts in England, to the northward and westward, the prospects are equally encouraging;—indeed, agricultural science has made so much progress of late, that the fields have generally the appearance of highly cultivated gardens. The soil is not exhausted, under the modern system of farming, by weeds and useless herbs, nor is the beauty of the country now deformed by similar excrescences. No vegetation is now permitted but that which is necessary to the people, and the idea of utility is associated with the luxuriance itself of this highly cultivated country. In Scotland the wheat crop is also in an equally favourable position, and promises, at the present moment, a most abundant yield. In Ireland even, although agricultural improvements there have not yet had time to make so much progress as they have done in Great Britain, still the fields are filled at present with vegetation, and a more than usually abundant produce may, with considerable confidence, be anticipated. To secure a good and abundant crop during the ensuing harvest will prevent the exportation of money for the payment of foreign grain, and will increase the sums of money embarked in agricultural and commercial improvements at home. When the agricultural interest receives remunerating prices for the produce of the fields, the home markets for commercial and manufacturing property are always proportionably increased, and when the transmissions of money to foreign countries for the purchase of grain is not rendered necessary by the elements, that money will be employed in home improvements, and will afford additional wages to the productive classes. During the last two corn seasons little short of five millions of quarters of grain were paid for, and imported into this country from foreign nations, and no increased exportation of manufactured goods, or of colonial produce, was visible during the same period. It must, therefore, be naturally concluded that the price of this foreign grain was abstracted from the capital of the empire, which must have done very material injury to the productive employment, and consequently to the wages and incomes of the people. The same evils will not occur during, at all events, the next twelve months, should the present corn season close as favourably as it has begun. On the contrary, the wealth of the country will be directed towards its farther improvement, and not expended abroad in making the necessary provisions for a deficient crop. The wheat crop, as we have already stated, has every appearance of abundance,

and superior farming has rendered the spring wheats as favourable in appearance as those sown previous to the turn of the present year. In the barley countries, and more particularly on the sandy and light soils of Norfolk, the genial rains, and the warmth by which they were generally attended, have given to the young barley plants a most luxuriant and healthy appearance, and consequently this article promises great abundance, should it be gathered in good condition. Of oats we are happy to make a report equally favourable, and in no season was the appearance of the potato crop more cheering than it is at present. In Ireland particularly this is the case, and to the inhabitants of that part of the empire this fact is of the greatest importance. There can be no superabundance of population in the United Kingdom so long as land remains uncultivated, for the inhabitants must be far more profitably employed in the tillage of that land than they can be when transported for similar purposes to the colonies. In Ireland the sources for employment of this description are nearly boundless, and capital embarked there in agricultural improvements, under the protection of the corn laws, in a few years must convert wastes into wheat fields, and open a new channel for the comfortable support of even double her present population. Favourable weather during the remainder of the season is now only necessary, we repeat, to the gathering of a rich and plentiful crop; and, should our present expectations on this subject be confirmed, several millions sterling will remain in the country, and will be expended in the profitable employment of the people at home, instead of being remitted to the continent, as it must be, in payment for foreign grain, from whence it will never return, should the trade in foreign corn again this season be rendered, by adverse circumstances, as free as it has been during the last two corn seasons.

The corn markets throughout the United Kingdom, during the month of June, have varied very little from their usual state at the same period of the season in common years. The supplies of wheat naturally have been small, but with the addition of moderate portions of free foreign wheats, they have been rendered in every respect equal to the consumption. In the value of wheat the differences, since our last review, have been of very little consequence. The duty payable on foreign wheat, when entered for home use, had advanced to 18s. 8d. per quarter, but still the holders of bonded wheats entered only a few thousand quarters when the duty was 16s. 8d., and thus shew that they still entertain strong hopes of prices being dearer, before the commencement of the next corn season. As the supply of home grown wheat for the next month or six weeks must from necessity be moderate, the proper application of capital on the part of some of the holders of bonded wheats may, by possibility, produce the desired effect, and cause a considerable reduction in the existing rates of duty, before any considerable portion of the new crop can be brought forward into the market for sale. Still to the British agricultural interest the accomplishment of these expectations on the part of the proprietors and importers of foreign wheat, cannot be of much consequence, should the next harvest be as good as at present it promises to be, for it will enable the farmers to lay up that stock of wheat which in prosperous seasons it has been their custom to do, and thus, when unpropitious weather, in some future season, renders the crop deficient, half a year's consumption at all events will be found in their possession to make good any partial failure in quantity or quality, which may occur under such circumstances. The rapid progress, however,

which agricultural improvement is now making under the moderate protection which the existing corn laws afford to the cultivation of the fields, and in particular to those of Ireland, must, in the space of a very few years, now make the inhabitants of the United Kingdom not only independent of supplies of food produced by foreign nations, but also increase their commerce in the exportation of the surplus of our growth at home to our own colonies, and to other communities, where climate prevents the cultivation of grain generally. Independent of the transformation of waste lands into wheat fields, there is not one acre of land now, however high may be the state of its cultivation, which is not still capable of much more extensive improvement than it has already undergone. The fields which were in tillage fifteen or twenty years ago already yield at least a fifth more produce than they did then, and it is not possible to predict when any limit may be placed to this increasing growth of the necessities of life. Heretofore it has fully kept pace with the increase of population, and eventually it must surpass it. We may therefore be permitted to entertain a well grounded hope, that before long, grain will form an important article in our foreign export trade, and thus add to the means of the capitalist for giving productive labour and fair wages to all classes at home, whatever may be the department of industry in which they employ their time, and to which they devote their talents and attention. During the past month the decline in the value of wheat generally has been about 2s. per qr., and under the present favourable state of the weather we do not think that any very sanguine expectations need be entertained by the holders and importers of foreign wheats, of any material alteration now occurring, unless it be brought about either by some change in the weather, or by some management in the average prices, by which importation is regulated.

The consumption of barley is, at this time of the year, generally much reduced, but the supply of it has been proportionably small; indeed the heavy taxes imposed on the manufacture of this article, are most inimical to its production, for the use of it might be doubled under different circumstances. In the spirits manufactured at home for instance, a considerable increase in the consumption of home grown barley would be the consequence of the suppression of the trade of the smuggler of foreign spirits; but this change can only be effected by a reduction of the duty now payable on distillation in England. In the United Kingdom the quantity of duty paid home made spirits is at present confined to 24 millions of gallons: of this quantity the Irish use 10½ millions of gallons, with a population of 8 millions in all. In Scotland the consumption amongst less than three millions of people, amounts to little under four millions of gallons; whereas in England, with sixteen millions of people, the quantity of duty paid home made spirits is limited to less than ten millions of gallons. Now in England the actual consumption of spirits is more than double of the quantity on which duty is actually paid, and a profitable field is thus opened to the undertakings of the foreign smuggler, occasioned, not by the superiority of foreign spirits over those of our home manufacturer, but by the intolerable weight of the duty which is charged on them. It has often been our fate to assert that taxation over done destroys the intentions of those who impose it, and that this is decidedly the case requires no greater proof than can be obtained by comparing the quantity of home made spirits used in Scotland and Ireland, where the duties are moderate, with that used in England, where the public charge is excessive. In the article

of malt the barley growers are still more seriously injured and oppressed, for the reduction of the malt duty to one-half of the present charge, would do more than double the quantity of beer at present consumed, and would open an additional market for the consumption of at least five millions of quarters of barley more than can be used under the existing system. The landed interest is sacrificed to taxation, but unless the barley growers complain of the injury done to them by the heavy manner in which barley is taxed, they must go without redress, and the people must continue to be limited in their consumption of beer to at least half the quantity, which, under different circumstances, they would be able to acquire. One million of acres of light soils might be brought forward into cultivation for the production of this additional quantity of barley, and as many pounds sterling would thus be added to the annual income of the land proprietor; the great body of the people would have a large increase to their present consumption of beer, and a farther channel for the productive employment of agricultural labourers would be opened to them; the revenue itself being increased by the alteration, and the immoral occupation of the smuggler being entirely suppressed. The value of barley during the month has been fairly supported, nor is any material decline in it probable until the new crop is brought forward into the different large markets of consumption.

The advance in the value of oats, which was expected to have occurred before this time, has not yet taken place, nor is it probable now that it will do so to the extent which was anticipated when our last number went to press. The supplies from Ireland in particular, have exceeded the general expectation, and from Scotland the arrivals have been much more liberal than a few weeks ago could have been supposed. The home supplies therefore, added to the foreign importations, have equalled the usual consumption, and prices consequently have remained during June without any material alteration occurring in them. To the consequences of the corn laws in Ireland we have been chiefly indebted for the steady state of the oat trade during the last two or three years, and if they conferred no other advantage than this one on the community, their repeal would be an extraordinary act of self injury, and certainly is not required by any visible increase in the exportation of goods to any of the foreign corn districts for the benefit of those who manufacture them. On the contrary, the foreign oats consumed here during that period, have been paid for by specie remittances, and not by manufactured goods; and had that money been paid to British and Irish oat growers, it would now be in circulation at home, employing the people and increasing their wages, as is universally the case when our home crops are equal to the home consumption.

Peas and beans of home growth have continued to maintain rather high prices, but the supplies of them generally have not been equal to the consumption, and some quantity of foreign have consequently been requisite to supply the deficiency. The season for them is now however, drawing to its close, and well grounded expectations are entertained that our home growth, the next year, will be equal to all our wants, and no further expense will be required for the payment of foreign supplies of these articles. Potatoes likewise have continued of the best quality to the close, a great proof of the progress making in the science of agricultural tillage, and which must continue to be attended by the most important consequences to the population, so long as proper

protection is extended to the cultivators of this most necessary root.

The information received during the last month from all the export corn markets in foreign communities, has not been interesting, the purchasers of agricultural produce continuing the old practice of regulating their transactions by the advices which they receive from Mark Lane. Throughout the different ports in the United States of America, during the month of May and the early part of June, an unusual degree of dullness prevailed, nor was it possible to effect sales either of wheat or flour for exportation to any great extent. Complaints, consequently, against our regulations, were on the increase, and the preference which our laws afford to our home producers of grain over those of the United States, was of course blamed, we may say by the entire population, for they feel themselves deprived of no inconsiderable amount of British money, which, under different regulations in our corn markets, they would have received in exchange for the surplus of their wheat crop, and which, in every probability, would have been employed in extending the American manufactures in opposition to our own. This money is far more profitably employed at home in commercial and agricultural improvements. From the Black Sea, and all quarters in the Mediterranean sea, the information latterly received is of the same description. No animation existed in the corn trade in any of them, and prices were generally on the decline. From the Baltic, and from all the corn ports without that sea, the advices received are of an equally gloomy description, although a decline in prices had brought forth some speculators, who had made considerable purchases, particularly in Hamburg and Dantzic, chiefly for British account. A quantity therefore will yet be imported, and probably bonded here, for the prices generally paid will not admit of favourable sales here even at our present quotations. Of the growing crops abroad, the reports are as favourable as they well can be, nor have we heard of any complaints any where on this subject.

CURRENCY PER IMPERIAL MEASURE.

		JUNE 22.			
		Per Qr.		Per Qr.	
WHEAT, Essex and Kent, red ..	68 70 72	White	70 76		
	Suffolk and Norfolk .. 66	68 72	Do....	72 74 78	
	Irish	69 60	Do....	60 64	
	Old, red	70 74 76	Do....	74 78 80	
	RYE, old	35 38	New....	41 43	
BARLEY, Grinding 50 32 34	Malt 38 40	Chevalier	40 42		
	Irish	35 37	Bere ...	34 36	
MALT, Suffolk and Norfolk	70 75	Brown...	56 60		
Kingston and Ware .. 68	70 75	Chevalier	70 76		
OATS, Yorksh. & Lincolnsh., feed	27 30	Potato...	29 32		
Youghall and Cork black	26 27	Cork, white	24 26		
Dublin	26 27	Westport	26 27		
Clonmel	28 29	Limerick	24 26 30		
Londonderry	— 29	Silgo ..	28 29		
Newry	28 30				
Galway	32 33				
Waterford, white	34 36	Black...	26 27		
Scotch feed	27 38	Potato	29 32 34		
BEANS, Tick, new	40 44	Old	44 48		
PEAS, Grey	39 40	Maple ..	40 42		
White	40 42	Boilers ..	44 46 48		
SAND, Rape	31 32	Irish	25 27 per last.		
Linseed	45 50				
English Red Clover, fine, 70	80 96	per cwt.			
White	68 70 80	90			
FLOUR, Town-made 68 ..	Suffolk 52	54	per sk. of 280 lbs.		
Stockton and Norfolk	52 54				
FOREIGN GRAIN AND FLOUR IN BOND.					
WHEAT, Dantzic	56 60				
Hamburg	52 —				
BARLEY	22 24				
OATS, Brew	— 24	Feed...	19 21		
BEANS	32 36				
PEAS	32 36				
FLOUR, American, per bri.....	24 —	Baltic ..	28 —		

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, June 19th, 1840.			AVERAGES from the corresponding Gazette in the last year, Friday, June 21, 1839.		
	s.	d.		s.	d.
WHEAT	67	7	WHEAT	68	1
BARLEY	35	9	BARLEY	38	5
OATS	27	6	OATS	27	4
RYE	87	1	RYE	40	2
BEANS	45	1	BEANS	40	2
PEAS	44	6	PEAS	39	4

IMPERIAL AVERAGES.

Week ending	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May 8th ..	68 1	38 6	26 10 26	9 43 11	41 6	
15th ..	68 7	38 5	27 6 37	2 44 2	41 7	
22d ..	68 0	37 8	27 3 37	2 44 10	42 5	
29th ..	67 10	37 0	27 1 37	3 44 6	41 11	
June 5th ..	67 1	36 4	27 10 39	3 45 4	43 7	
12th ..	67 7	35 9	27 6 37	1 45 1	44 6	
Aggregate Average of the six weeks which regulates the duty	67 10	37 3	27 4 37	3 44 8	42 7	
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London	18 8	6 4	6 3 14	0 3 6	6 6	
Do. on grain from British possessions out of Europe	0 6	0 6	2 6 0	0 6 0	0 6	

SEED MARKET.

JUNE 22.

The operations in seeds were of the most retail description, and excepting that fine carraway was rather more sought after, at slightly advanced rates, no alteration took place either in the demand for or value of any article.

Lisseed, English, sowing 50	51		
Baltic	—	crushing 41	44 per qr.
Mediterr. & Odessa ..	—		
Hempseed, small	34	large .. 38	40
Coriander	10	old	18 — per cwt.
Mustard, brown	16	white .. 11	14 pr. bush.
Turnip Seed, new Swedes ..	—	—	10 18
Clover, English, red	50	white 48	60 per cwt.
Flemish	40	do. .. 45	48
New Hamburg	52	do. .. 46	60
Old do.	35	do. .. —	—
French	50	do. .. —	—
Old do.	40	do. .. —	—
Trefoil	10	fine new 26	26
Rapeseed, English	30l.	foreign, 28l.	80l. per last.
Rye Grass, English	30	Scotch 18	40
Tares, winter	—	Spring 5	8
Large, foreign	5s. 6d.	6s. 6d.	
Canary, new	60	extra 78	
Curraway	50	52	

PRICES OF HOPS.

BOROUGH, June 22.

The blight in those districts which were affected, still continues, and every day renders the attack more serious. Mid and East Kent, however, remain free from it; the duty is estimated at 130 to 135,000; a little more business doing at about 5s. advance.

Kent Pockets, 1839	£3 5 0	to £4 10 0
Do. choice do.	4 15 0	6 15 0
East Kent pockets, do.	4 0 0	6 6 0
Sussex do.	3 3 0	3 15 0
Kent bags do.	3 15 0	5 10 3
1838's	9 10 0	3 10 0

WOOL MARKETS.

BRITISH.

JUNE 22.—Such a total cessation of business as has taken place this last week, has scarcely been experienced in the worst of times. All sorts are involved in the same

predicament. The countenances of holders of wool depict the state of the trade most dolefully, and no cheering future prospects are in the least degree apparent to alter them.

	s.	d.	s.	d.
Down Teggs	1	2½	1	3½
Half-bred Hogs	1	2	1	3
Ewes and Wethers	1	0	1	1
Flannel do.	0	10	1	2
Blanket Wool	0	6	0	8
Skin, Combing	0	10	1	1½

LIVERPOOL, June 20.

SCOTCH.—We have again to report a very limited demand for laid Highland wool for the week at our former quotations; the manufacturers buy but sparingly, expecting that as there is no very immediate prospect of improvement in trade, that prices must still decline. There is scarcely any demand for either crossed or Cheviot, but in the absence of any transactions we keep our quotations as before.

	s.	d.	s.	d.
Laid Highland Wool, per 24 lbs. ..	8	0	8	6
White do. (none)	00	0	00	0
Laid Crossed do. unwashed ..	9	0	9	3
Do. washed do.	9	6	10	3
Do. Cheviot unwashed do.	9	6	11	0
Do. washed do.	13	6	16	6
Cheviot white	24	0	26	0

FOREIGN.—We have had a very dull business this week, and only a small quantity of foreign wool changed hands, although prices were somewhat lower. The rates paid at the auction in London were considered to be under those previously realized by private contract. Arrived this week, 893; previously, this year, 29,812; total, 30,705 bags.

FOREIGN.

JUNE 22.—At last week's public sales a considerable falling off was apparent in the demand for most of the wools offered for public competition, and the prices declined from 1d. to 2d. per lb., in consequence of which large quantities were bought in. By private contract, next to nothing is doing, while the imports continue moderate.

POTATO MARKET.

SOUTHWARK WATER-SIDE, JUNE 22.

During the past week the arrivals of Potatoes to the port of London have been as follows:—viz., from Yorkshire, 186 tons; Scotland, 231; Kent, 50; the total being 561 tons. The above being fresh samples, and coming to market in good condition, has caused the demand to be equal to the supply, consequently no difficulty is experienced in effecting sales at the annexed quotations.

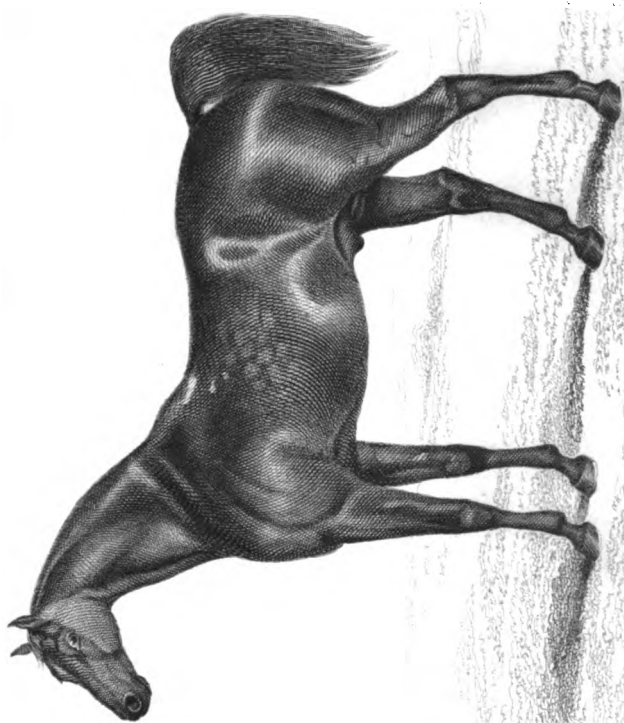
PRESENT PRICES ARE AS ANNEXED:—

York Reds, 120s. per ton; Scotch do., 100s. to 110s.; Devons, 100s. to 110s.; Kent Kidneys, 100s.; Kent Whites, 90s.

MANURES.

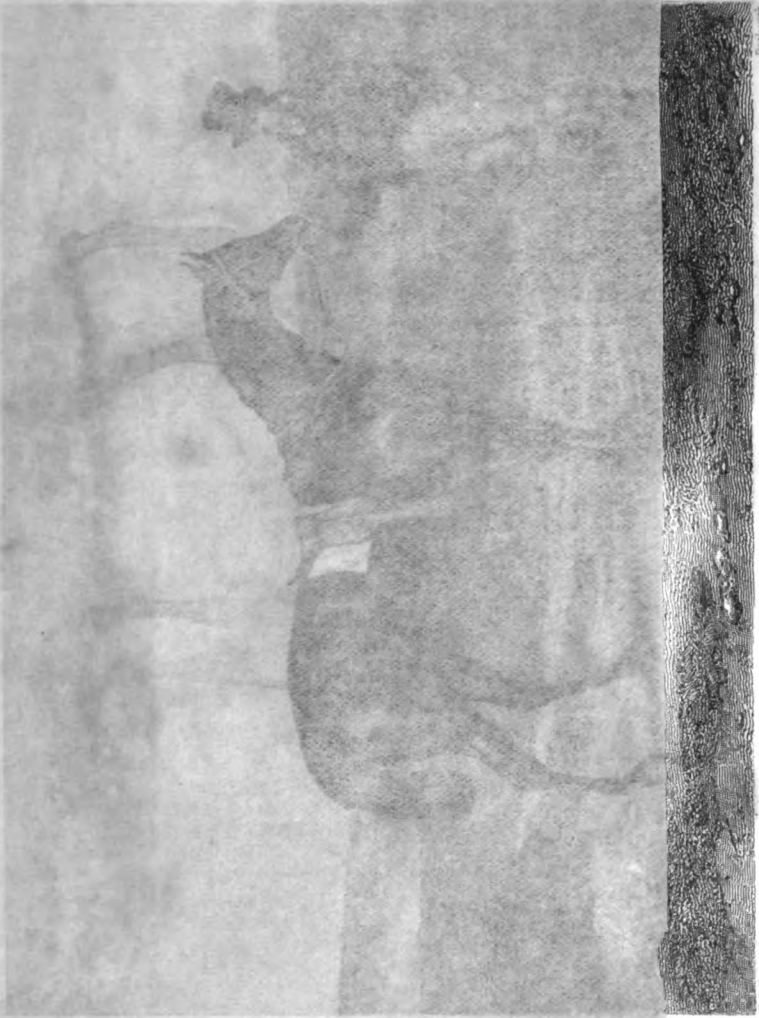
Subjoined are the present prices of several sorts of manure:—

Bone-dust, 21s. per qr. of 8 bushels.	
Half-inch ditto, 20s. per qr. do.	
Rape-dust, 6l. 15s. per ton.	
Rags, 4l. to 4l. 10s. per ton.	
Graves, 5l. to 5l. 10s. per ton.	
Gypsum, 38s. per ton.	
Salt, 2l. 5s. dirty, 2l. 15s. clean, per ton.	
Carbon, 12s. 6d. per qr.	
Soap ashes, 10s. per ton.	
Artificial Manure, 12s. per qr.	
Poittevin's Patent Disinfected Manure, 13s. 6d. per qr.	
Nitrate of Soda, per cwt.—19s. 0d. to 19s. 6d.	
Nitrate of Potash or Saltpetre, 24s. to 27s. per cwt.	



W. H. Smith

Printed by W. H. Smith, 10, Abchurch Lane, London, E.C. 4



Little Wonder

Winner of the Derby 1810.

London, Published by Joseph Rogers, 64, North's Street, Strand. Aug. 11, 1847.

J. C. Turner



*Little Boy
 Winner of the 1st July 1880
 and 1st prize of the 1st July 1880*

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THE FARMER'S MAGAZINE.

AUGUST, 1840.

No. 2.—VOL. II.]

[SECOND SERIES.

PLATE I.

The subject of the first Plate is Nimrod, the property of Mr. Lacy, of Pantton, near Louth. This horse was bought by Sir David Baird, at Callender, near Falkirk, in Scotland. He was hunted for seven seasons in England by that gentleman, one of the hardest riders in the kingdom, and performed during that time, more than the work of two horses, without being sick or lame. The prize of Ten Sovereigns, as the best horse for getting hunters, was awarded to him at the Louth Agricultural Meeting in August, 1839; as also the premium of Seven Sovereigns, at the Lincoln Meeting in August, 1839, and a premium of Five Sovereigns as the best horse for getting hacks.

PLATE II.

“LITTLE WONDER,” WINNER OF THE DERBY.

(For Description see page 146.)

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Although a difference of opinion may exist as to the *amount* of advantage which the agriculture of Scotland has derived from the Highland Agricultural Society, nevertheless it is conceded by all, that its effects have been beneficial. Experience, therefore, confirmed by the support of a numerous and influential body of landowners and occupiers leads to the conclusion that the Royal Agricultural Society of England will be the means of effecting such an improvement in the cultivation of the soil of this country, as will enable the growers of agricultural produce, to meet the demands of the population, to an extent so ably described by the celebrated Watson, Bishop of Llandaff, “If the time had finally come, when an unproductive acre of land could not be found in either of these, our fortunate islands, we shall then have food within ourselves for the annual subsistence of, at least, thirty millions of people; and with a population of thirty millions, *what power in Europe, or what combination of powers, will dare attempt our sub-* OLD SERIES.]

jugation.” Whatever may be expected from influence and talent, may be predicated from the demonstration made at the second meeting of the Royal Agricultural Society of England, at Cambridge, in the past week. Patronized by the Sovereign of this great empire, supported by a Prince of the Royal Family, aided by the name and influence of the greatest living warrior, upheld by the most influential landowners of the United Kingdom, and counselled by the advice of the most intelligent and experienced *practical* farmers, it will not be matter of surprise, that every person who is a member of such a society should feel proud of his connection with it.

If then the highest, the most renowned and respected amongst the nobility, the first commoners in the land, nay, those who have filled some of the highest offices in the state, felt a pride in boasting at the late meeting at Cambridge, of their having been the first to announce it in public, of having been present at its birth, those who move in an humbler sphere, like ourselves, may be pardoned the vanity of taking credit for having suggested the establishment of that society, for having advocated it when those who now seeing its suc-

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[No. 2.—VOL. XIII.]

cess, proffer their aid, withheld their support, nay, even opposed it.

We seek not to array ourselves in borrowed plumes, we desire not to detract one jot from the merit of others, we ask only that poor, but proud reward, an acknowledgement of the good which we have been instrumental in effecting. To the early readers of our journal, these remarks would be unnecessary, but as there are very many who have not had the opportunity of witnessing the course which we have pursued on this subject, we deem it necessary to go into some detail, sincerely hoping it may not be tedious, but relying on the importance of the subject as an apology. The pressure of other matters will not permit us to go minutely into the matter at the present moment, but we recollect, that so far back as the year 1834, we set forth the advantages of the Highland Agricultural Society, and invited the co-operation of the parties interested to establish a similar institution in England. The following is an extract from an article in the *Mark Lane Express* in that year:—

“The only means by which there is any hope of accomplishing an improved system, is by the formation of a CENTRAL LANDED INTEREST SOCIETY for Great Britain and Ireland, and we are happy to inform our readers that there is now every reason to believe that the Society will be finally organized at an early period of the ensuing session.

“In inviting the co-operation of the landed interest & agricultural societies to this object, we may remind them that the purpose of the Society now forming is to increase the present wealth of the country by the removal of artificial as well as natural obstructions, and by a more extensive application of the sciences to the cultivation of the soil. That constituted upon similar principles to the HIGHLAND SOCIETY, it will be conducted by directors, annually to be chosen from the more eminent of its members, who shall be subdivided into committees for the various sciences applicable to husbandry, and for rural economy. That its funds will go to provide a convenient building, to contain a library, museum, hall, &c. where meetings to hear reports, lectures, essays, &c. will be held periodically,—to correspond with foreign societies, and form a centre of communication for those at home;—to give premiums for inventions of national utility, and to promote the establishment of schools throughout the country, for the instruction of farmers' sons in the sciences applicable to agriculture.”

“We earnestly trust, therefore, that a METROPOLITAN SOCIETY for this object will meet with the cordial and unanimous support of all interested in the advancement of the interests connected with the soil, and that it shall not be much longer said, that amongst the innumerable institutions now existing in London, there is none specially devoted to the improvement of agriculture, the first and greatest concern of the nation, and the foundation of its prosperity in every other matter.”

Omitting many intermediate occasions on which we drew attention to the subject, again in 1835 we urged the formation of a society to be called “THE ROYAL AGRICULTURAL SOCIETY,” a title now adopted by our society, and we then laid great stress on the importance of *excluding politics*. At that period some parties, desirous of establishing a Central agricultural society, came forward

with a goodly array of influential names, and entertaining a hope that the object we had so long desired would at length be entertained, we lent them our assistance, until from certain circumstances our apprehensions were aroused to the probability that the alloy of *politics* would be found in the materials of which the society was composed, when we warned them of the consequences in the following terms:—

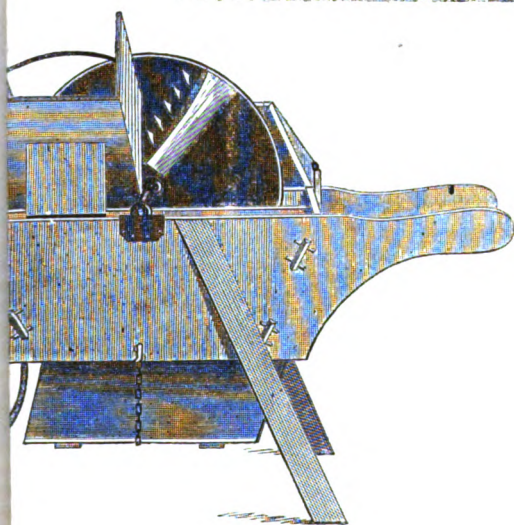
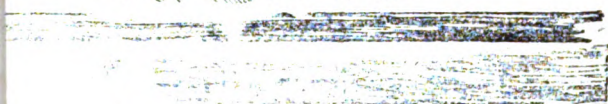
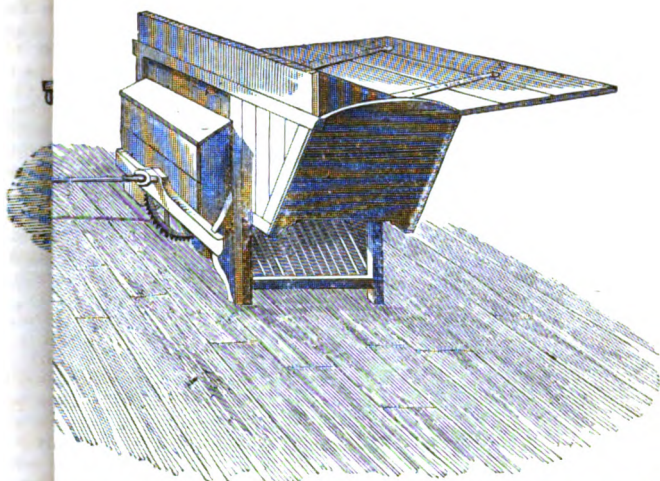
“It will be seen by an advertisement in another part of our paper, that a meeting will be held at the Freemason's Tavern, on Tuesday, the 15th inst., to take further steps for the formation of a Central Agricultural Society in the Metropolis. The period is very opportune, as many of the most leading agriculturists in the kingdom will be in London, on the occasion of the meeting of the Smithfield Club. We feel considerable anxiety as to the result of the meeting, being satisfied that it will wholly depend upon the known sentiments of those individuals who may be induced to take a prominent part in the proceedings of the day. Many gentlemen who have great claims on the agricultural body for the zeal displayed in their cause generally, as well as for their exertions in establishing a Central Agricultural Society, are well known not only to entertain at this moment strong opinions on the currency question, but to have constantly inculcated their opinions through the medium of the press, and by their speeches at public meetings. Now we do not hesitate to give it as our opinion that unless it be openly and honestly avowed that no intention of interfering with the currency exists in the bosoms of those who will be called upon to take a leading part in the future proceedings of the Central Society, the attempt to establish it will be an abortion.”

That Society was *formed* but not *established*. The managers persisted in entertaining political questions, and in 1836 we again adverted to the society in the following language:—

“Long previous to the formation of the Central Agricultural Society we strongly recommended the establishment of such a Society. We pointed out as our model, the Highland Society, and we expressed an opinion, which we still maintain, that with all the advantages which might be derived from the experience of that Society, an Association might have been formed in the metropolis, which would have conferred incalculable benefit upon the agriculturists of the United Kingdom. Some gentlemen who were desirous of establishing such an Association, communicated with us, and we aided them in their endeavours till we found, that the course they were about to pursue in the establishment of the Society was one, which, from the subjects prominently put forward, and the party character the body was likely to assume, could only bring the cause of Agriculture into disrepute and ridicule. We pointed out from time to time the prejudicial consequences which must result from the line of conduct pursued by the leading members of the Society, and we pronounced the Society to be deeply imbued with a political spirit which must prove fatal to its utility. Our remarks called forth from the organ of the Society the most bitter observations, and subjected us to the most unfounded calumnies and falsehoods. Firm to our purpose, and anxious to promote substantially and permanently the cause of agriculture, we continued to express our opinions despite the misrepresenta-

RANSOME,

(page 133.)



Barrow Turnip Cutter.

tion to which we were exposed. We over and over again declared that the Society as constituted would not advance the interests of the *tenantry*. We pronounced the Society to be a political body, which assertion was strenuously denied under the authority of the leading members of the Society itself, but we had formed our opinion from the character of the leading members of the body, and from the tenor of their speeches at the different meetings of the Society, and we were not to be shaken."

We continued our remarks in these terms:—"TENANT FARMERS, we tell you now, as we have often told you before, the Central Society, whilst composed of its present materials never will benefit you one single tittle." Mark the result; the Central Society gradually dwindled away, and has ceased to exist. Undaunted by the establishment of that society which retarded the attainment of the object we desired, namely, the establishment of a society *wholly free from politics*, we persevered in advocating the adoption of our plan, both by private communication with individuals, and by publicly addressing the agricultural class; and well do we remember an observation of Mr. Bennett, the member for Wiltshire, made to us in the lobby of the House of Commons, when addressing him on the subject, "you will never succeed, everybody is disgusted with the Central Society." At various times we kept the subject before the agricultural body, and in August, 1837, we observed, in the course of an article in this Journal, "During the few weeks that her present Majesty has occupied the throne of these realms, she has manifested an ardent desire to promote the prosperity of the nation and the happiness of the people. There is no one act which would tend so much to bind close to her the hearts of the sturdy British yeomanry as the manifestation of her desire to promote improvements in the pursuit in which they are engaged. As the re-establishment of a board of agriculture upon an *improved plan*—the collection and diffusion of agricultural knowledge throughout the kingdom—the connection of approved local practices upon various matters, and the institution of accurate experiments would be productive of great and immediate good results."

Again, in October of the same year, we used the following language:—

"We have uniformly urged the rejection of politics at agricultural meetings, and daily observation tends to confirm us in the opinion, that nothing but schism, disunion, and ultimate annihilation, can be the result of an opposite course of proceeding."

In December of that year, at the meeting of the Smithfield Club, we took the liberty of communicating with Earl Spencer personally upon the subject, and in which we were aided by Mr. Clarke Hillyard. His Lordship conferred with his Grace the Duke of Richmond, and it was arranged that the subject should be introduced at the dinner of the Smithfield Club. The manner in which the announcement was received, is well known to our readers. From that moment to the meeting in May, 1838, when the Society was established, we left no means untried to obtain supporters. Mr. Handley was also incessant in his exertions, and the result has been the glorious and

triumphant meeting at Cambridge last week. It should be especially noticed, that for the five years during which we advocated the formation of the Society, before its establishment, and for *some time afterwards*, those journals which boast their attachment to the farmers, who call themselves *par excellence*, the "farmers' friends," would never admit a line into their columns in furtherance of it. The "Mark Lane Express," and the "Farmer's Magazine" were the only agricultural publications in which the benefits of such a society to the agricultural class were advocated. We have now given a very imperfect outline of the part which we took in the establishment of a society of which we confess to be proud, and we trust it will not be deemed an improper degree of vanity, to be desirous of placing ourselves in our proper position before our agricultural friends, leaving it to them to assign to us such credit as, in their opinion, we may merit. *Mark Lane Express.*

ON SWINE.

[This article is extracted from an American publication. We have given cuts of all the animals in order to carry out the object of the writer in contrasting the *well* and *ill* shapen:—ED. F.M.]

The writer of the following article, having become a breeder of improved swine to some extent, among other choice stock, has found himself so often called upon for descriptions of them, and rules for their breeding, that, by way of general answer to numerous inquiries, he has embodied below such information as his little experience and limited range of inquiry have enabled him to obtain. Though much has been desultorily written upon this interesting subject, we have still to regret the want of some standard work to refer to, for full and complete information in so important a branch of rural economy. It is to be hoped, however, that the British Society for the Diffusion of Useful Knowledge will soon add to the valuable Treatises that have recently appeared on horses, cattle, and sheep, a similar one on swine, and thus supply this great desideratum. The substance of the rules of breeding, together with some other observations, appeared originally over the writer's signature, in the 2nd and 3rd numbers of the current volume of that excellent agricultural periodical, the *Franklin Farmer*, published in Kentucky. These who then took the trouble of perusing them, he trusts will excuse their re-appearance here, among a numerous and almost entire new class of readers.

Of the hog tribe (*Sus*), zoologists describe no less than six species, some of which are so entirely distinct in their general habits and appearance as to have prevented their ever breeding, or even associating together. Five of these species, however, can only be regarded as matters of curiosity to us at present; we shall therefore pass them over, and come at once to that known as *Sus scrofa ferus*, the common wild hog of the Eastern Continent, and from which has directly descended the domestic among us, in all its countless varieties. Except with those nations where its flesh was forbidden by their law-givers, the wild boar has ever been considered a great delicacy, and eagerly sought for, not only to gratify the

appetite of the epicure, but as affording a favourite amusement in the chase, that was considered equally noble, dangerous, and exciting to those who followed it. Among the earliest feats that Zenophon thinks worthy to record of his favourite hero Cyrus, is that of hunting and slaying the wild boar with his own hand; and the greatest of modern heroes, Napoleon, thought a chase of the same kind highly indispensable to royal habits, and to assist in qualifying him to assume the imperial purple, with the greater dignity and grace.

The time of the domestication of the hog, like that of most other animals, is lost in remote antiquity, but that it must have been very early we infer from the fact, that the Greeks and Romans offered it as a grateful sacrifice to Ceres, the goddess of agriculture, in order to propitiate her smiles upon their labours, previously to commencing their harvests. That distinguished philosopher Aristotle, also gave hints on the raising and breeding of swine, which are worthy of regard at the present day; and Varro and Columella, if we would substitute soft, thin hair for "thick, strong, and erect bristles," have described the main points of what we may now consider, with all our modern improvements, a very perfect hog.

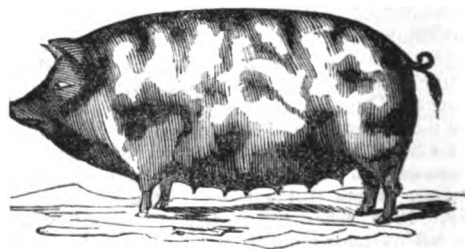
The reasons that were supposed to influence the forbidding of eating swine's flesh, as well as that of several other creatures, under the Levitical law, are, that the children of Israel, at the time of their exodus out of Egypt, were a very debased and gross people; but few grains and vegetables were then cultivated to vary the food of man, and as they were destined to inhabit where a generally hot and dry climate prevailed, a great indulgence in these meats would tend to thicken the blood, check perspiration, and, consequently, especially engender scrofulous, scorbutic, and cutaneous diseases. We find among the Egyptians, that some of the same prohibitions of Moses were made sacred by their priests to that singular people, with the intention, undoubtedly, of more certainly preventing their being used as food, and mainly for the reasons spoken of as above. Pork, however, as now usually made, and above all eaten in the moderate quantities that it generally is, and accompanied by so great a variety of grain and vegetable food, can no longer be considered objectional, especially in a cool climate; and as it is one of the most palatable and substantial of meats, the cheapest and easiest reared, the longest and most certain to keep, it has at length become the most necessary item of the stronger food of civilized man, and without doubt the most important of the stock-grower's products in the United States.

What amount of pork is annually raised and consumed in the republic, it is impossible to accurately say, but something of an approximation may be made towards a calculation of it. The census of the present year will doubtless give us a population in round numbers of 16,000,000. The army ration to each soldier of the best quality of mess pork per day, is three-fourths of a pound, which would be about equivalent to one pound of the whole hog. It is intended that this ration shall be rather more, upon an average, than each soldier can consume; we will therefore put the allowance in whole hog pork at twelve ounces. Admit, for the people at large, that beef, mutton, fish, &c., would make half their meat, again deduct half of this remainder for women and children not being as great consumers as men, and the result would be three ounces per day, or say sixty-four pounds each per annum for the whole population of the United States. But for fear of an over estimate, we will suppose the consumption only two

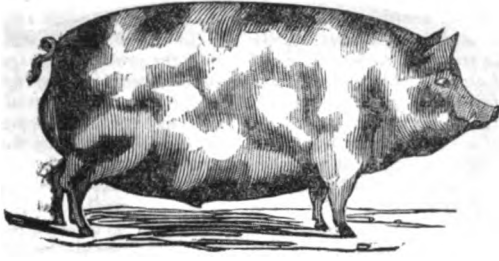
ounces per day—this amounts to 730 million pounds, or 3,650,000 barrels, which at eight dollars per barrel, (the probable average price, taking one year with another) would make 29,200,000 dollars as the value of our pork consumption alone. Now many of our most experienced stock-growers assert, that the improved races of swine will make three times as much meat from the same quantity of food, that those of the unimproved will; and again, the quality of the meat is so much superior that it will go twice as far in giving vigour and sustaining life. Experience has convinced me of the truth of these assertions; but lest we should claim too much, we will allow only one-half saved, or say, in round numbers, fifteen millions of dollars. What a vast sum to be annually lost to America, just for want of a little attention in breeding pigs! Why, if properly applied, it would soon finish all our projected rail-roads and canals, or keep a good school one-half of the year in every district in the Union.

Of all the known varieties of the domesticated hog, the Chinese has long been celebrated as decidedly the most perfect in shape and general conformation. How this breed was first produced, it is impossible now to say; there is no doubt, however, in my mind, but that, like the Arabian horse, it was *original*, and that the best specimens to be found on the Eastern Continent, are the identical counterparts of the pair that descended with Noah from the ark, after the subsiding of the Deluge, and that all the other varieties deteriorated by running wild or from carelessness in feeding, and neglect and inattention in properly breeding—the goodness of the Deity never forming in the beginning the detestable brute that we see roaming in every direction the country round, like a veritable cannibal, seeking who and what he may devour. Be this as it may, the Chinese, as we find them scattered along the coasts of the Celestial Empire, and on the adjacent islands, vary greatly in size, and somewhat in shape, and are of every shade of colour, from pure white up to jet black. The most approved varieties, however, may be thus described. A fine head and snout, with the face somewhat dished, small soft upright ears, a snug and very thick deep carcass, large hams and shoulders, short legs, delicate feet, soft thin hair and skin, a tendency to grow and fatten almost upon air alone, and to give, when slaughtered, very little offal, and the sweetest and most delicate of pork.

Below are the portraits of a pair of the improved Chinese (figs. 2 and 3,) in the writer's possession, bred by himself, and faithfully sketched after the originals, by his friend Mr. Julius Gerber, and engraved by Mr. J. W. Orr. They are represented in no better flesh than they will always attain when full grown running in a common pasture during the summer, or with the most moderate allowance of food in the winter.



[FIG. 2.] MAID OF ERIE.



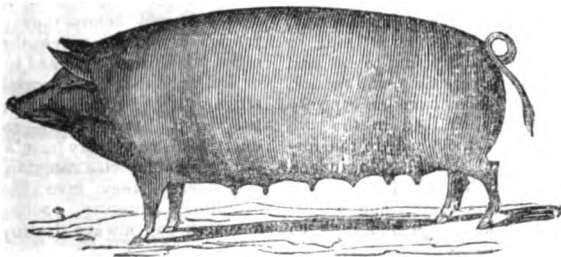
[FIG. 3.] SENECA CHIEF.

As now bred by the writer, their live weights full grown, are generally from 200 to 300 pounds; occasionally they have gone as high as 400 pounds, but this is extremely rare. They are equally hardy, enduring heat and cold as well as any of the native swine; are fair breeders, usually having from six to nine pigs at a litter; mature easily, and can be fattened at any age. Whether in field or pen, they are ever quiet; the loosest boards keep them up, and the poorest fence secures them within their bounds; and like Diogenes in his tub, they seem never so happy as when left alone to sleep, and dream, and cogitate on deep philosophy. Their meat is exceedingly delicate and sweet. In England it bears the highest price, and is called par excellence the "gentleman's pork." The improved Chinese will give a greater amount of pork for their feed than any other breed in existence; and it is in allusion to this circumstance that the able editor of the *Maine Farmer*, with no less truth than justice, calls them the "poor man's hog." Boars of this breed are highly recommended to cross with the common hog of the country, as they most rapidly improve the quality of the meat of their progeny, fine their points, give breadth and depth to the carcass, quiet their disposition, and add a greater tendency to mature quick, and fatten kindly, and at the same time increase their sizes.

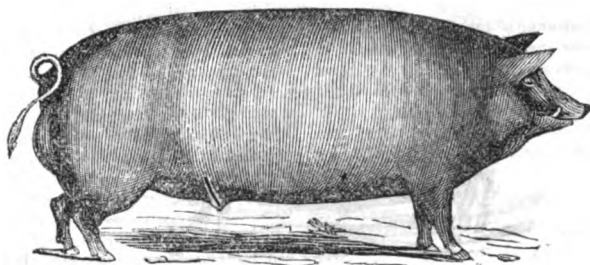
Many attempts have been made in Europe to improve the breed of the native swine, by selections and otherwise; but so far as the writer has been able to follow them up, there has been little success, and that little very slowly obtained, except only where resort has been had immediately to the Chinese boar. This is particularly the case with England, whose efforts seem to have carried her, in this department, as far beyond her neighbours as in that of the improvement of horses, cattle, and sheep. Every country there boasts of its breed of swine, and many are certainly very deserving, having derived their chief excellence from a cross more or less deep with the large white Chinese boar. Of these are the Leicester, the Bedford or Woburn, the Sussex and Cheshire. But the most decided improvement, and which by the care and skill of recent breeders has now nearly attained perfection, was that of the black Siamese boar upon the old stock of Berkshire county. This, I understand, began about forty years since. The

Berkshires were then mostly a long, large, coarse, lop-eared hog, of a sandy or reddish brown, or white, with black spots, and coming up, not unfrequently, to the high weights of 800, and even 1,000 pounds. But it was a slow feeder, long attaining to maturity, an enormous consumer, and in common with most of England's other varieties, an unprofitable beast. Yet possessing rather thicker hams and shoulders than the other kinds, a longer, fuller body, and its meat abounding greatly in lean, the little, short, fat, black mouse-eared Siamese told well in the cross; and thus was produced the dark, splendid Berkshire, that at present occupies the same rank among hogs that the Durbams do among cattle. They mature quickly, and like the Chinese, can be fattened at any age, and still may be selected, when desirable, for great sizes are prolific breeders and the best of nurses; thrifty, hardy, and of most excellent constitution. They are fine in their points, possessing remarkable thickness in the ham and shoulder, and show a round smooth barrel of good length, that gives a large proportion of side pork. They have little offal, thin rind and hair, and few or no bristles.

As now bred, the Berkshires vary somewhat in size, appearance, and maturity. Those with the finest heads, dished face, and rather upright than forward ears, with a snugger shoulder and ham, and shorter body, most resemble the Siamese ancestor, and therefore are quickest to mature, and probably give the most delicate meat, and to one satisfied with moderate size, are undoubtedly to be preferred. Barrows of this description, if well fed till 18 months old, easily attain 300 to 400 pounds, and weights within these limits are the most eagerly sought for at the Smithfield market, and are probably on the whole the most profitable for both consumer and producer. Others, generally of a strait nose, with a coarser head, and ears protruding well forward over the eye, or slightly lopped, with greater length of body, incline more to the original Berkshires, attain higher weights, and require a longer time to mature. There are individuals, however, occasionally possessing all the fine requisites of the former selections, together with the large size of the latter. Of this class the subjoined figures are supposed to be as fine specimens as any at present in the United States. (figs. 4 and 5.)



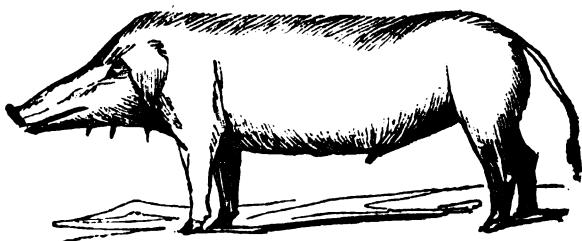
[FIG. 4.]—RAVEN HAIR.



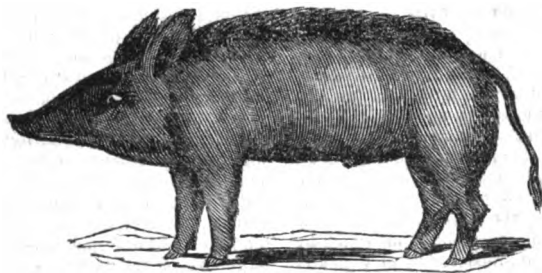
[FIG. 5.]—BLACK WARRIOR.

This pair is among the writer's breeding stock, and he believes that he can confidently appeal to the numerous gentlemen who have favoured his piggery with a call, to attest to the faithfulness of the portraits. They are not considered fat at all for Berkshires, but merely in good store order, and were two years old last spring. The live weight of the sow is now about 450 pounds, that of the boar 500 pounds. They have never been pushed at all in their feed, but kept steadily along, and when grown, in fair condition will weigh respectively 600 and 700 pounds at least, and probably something more.

We now come to a pair of fatting barrows of the unimproved breeds of swine. They abound throughout the country, under a variety of most euphonious names, but we may suppose those of Alligator and Landpike about as appropriate to them as any others that could well be applied. They are not, however, introduced here for derision, or for the purpose of getting up a caricature, as the originals can easily be found; but to show that there is *something in breed*, and to illustrate the difference between a good animal and a poor one of the same variety. They have long, peaked snouts, coarse heads, thin chests



[FIG. 6.]—ALLIGATOR.



[FIG. 7.]—LANDPIKE.

and narrow shoulders, sharp backs, slab sides, steep rumps, and meagre diminutive hams, big legs, clumped feet, with the hide of a rhinoceros, and the hair and bristles of a porcupine, and as thick and shaggy as a bear's. How can such animals thrive, and above all, ever be fattened? To attempt to make them do either, as the writer found to his cost in his first efforts at farming, were time, and money, and produce thrown away. They have no capacity at digestion, and concocting their food in the stomach for nourishment; and if they had, to the formation of what would it all go? Pork? No, indeed—but offal, bones, rind, bristles and hair, with a narrow streak of gristle underneath, and a still narrower line of lean, both as tough and rank as

whitleather, and about as incapable of being masticated; and if it were not, must require a vast deal of larding to make it sustain human life. I have been obliged to purchase it occasionally for my workmen, and before they could possibly get up a fry for breakfast, twice the weight in lard from other hogs had to be added to it; and as for baking or boiling, one might as well undertake to stew an alligator's hide itself. In disposition they are like the Ishmaelites of old—their snouts are against every man, and every man's hand is against them. No reasonable fence can stop them, but ever restive and uneasy, they rove about seeking plunder; squalling, grunting, rooting, pawing, always in mischief, and always destroying. Enormous gor-

mardizers, yet never satisfied; but like Pharaoh's lean kine, they lick their jaws for mere, and show in their miserable carcasses no return for the food consumed. In short, the more a man possesses of such stock, the worse he is off, and he had far better sell his produce at any price—yes, even his corn at a dime a bushel, than to put it into such totally worthless brutes.

OF THE CHOICE OF STOCK, BREEDING, AND REARING.

THE BOAR.—After obtaining as many other good points as possible in choosing a boar, reference should then be had to a strong, masculine appearance in him, even at the risk of getting some little coarseness, as this denotes great vigour and constitution. Both sexes of the improved breeds of swine are, if allowed, precocious in breeding. To prevent this, the boar pig must be separated from the sows, as soon at least as he has attained four months of age, and it is better thenceforward to keep him entirely by himself. For this purpose, a close covered, roomy, pen, with a plank floor, and plenty of litter, is provided for him to feed and sleep in, and retire to whenever he pleases, and made comfortably warm in winter, and cool in summer. This communicates, by a door that can be opened and shut at pleasure, with a yard for him to root and exercise in, and a strong upright post or two to rub and scratch against, and a slough hole to cool and refresh himself by wallowing at his pleasure during hot weather. If this yard could be extended to a good grass pasture, with clear, sweet water passing through, it would be still better for the boar to have a run there, and more conducive to his health, vigour and longevity.

He should never be permitted to be used till seven months old at least, and it would be much better that he were allowed to run till nine months. But if commencing at seven months, he should cover sparingly, say not more than fifteen to twenty sows, till a year old, and these as distant apart as possible, not more than three in any single week. From this time, till he has pretty full vigour, which for the Chinese I should call twelve, and the Berkshire at eighteen months of age, he may be used a little more freely. His spring seasons might then vary from twenty to thirty sows, and the fall nearly double this number. The sow should be introduced to him just at the close of her heat, and allowed but one coitus, or two at the most, and then be immediately taken away. It has generally been noted, that one covering produces a greater number, and stronger offspring, than two or three, and that an *ad libitum* service is alike pernicious to all parties.

During his seasons, if pretty freely used, he should be kept up, and with care, being fed at least three times a day, about, or quite as much as he will eat. The best aliment for him then is boiled or soaked corn, with plenty of pure fresh water, and for variety some swill from the house, slightly thickened with meal, (oat is the best,) and a few raw or boiled vegetable roots. As an antidote to disease, and to give tone to the appetite and assist digestion, a table spoonful of sulphur is occasionally put in his food; salt also is placed where he can get at it when he pleases, and charcoal or small chunks of rotten wood, together with a handful of crushed bones. Between the seasons his feed is made lighter, but sufficiently nutritious to keep him in fair store order, and more exercise, and a greater run, as above, is recommended. A

good animal thus treated may last ten years or more, and get excellent stock from first to last. I have lately heard of boars having been effective till past twenty, and can see no good reason to doubt the truth of the communication, as the hog has been known both in ancient and modern times, to have frequently attained the age of thirty years. The duration of their services, and goodness of their stock, depends mainly upon their treatment. Great error is committed in irregularity of feeding, and overtasking their procreative powers, and hence the frequent disappointments in distinguishing animals, not producing stock at all equal to themselves.

THE SOW.—When growing pigs or shoats, and kept up in pens, not more than half a dozen sows ought to be together, yet in large pastures any reasonable number may be suffered to associate. But when full grown, and especially if of a large size, two at most is sufficient together in confinement, and it would be still better that each one had an apartment to itself in the piggery. Unless the pig was lean, and the object was to somewhat fatten her, it ought not to be allowed to breed, if a Chinese, till twelve, and if a Berkshire, till eighteen months; and if something extra large was wanted, defer their coming in still six months longer. There is then no check in growth, and the first litter of pigs is usually as fine and as large as any subsequent ones. The period of their gestation is sixteen weeks, and the time that they are stinted to the boar should be set down, and one month at least previous to farrowing, each sow should be taken up and occupy a place alone, either in pasture or in pen, similar to that described for the boar, be kept in good order, and strictly watched when expected to bring forth. As soon as dropped, see that the pigs are cleaned and take the teat, and the dam rid of the placenta, and that carried off and buried. She should then be supplied with short cut litter in a moderate quantity, so that her young will not get tangled in it, and be smothered. Oat straw is the best for this purpose, wheat and barley having bearded heads, which if eaten frequently, hook to the intestines, and cause a dangerous irritation and often death. The watching should continue several days, till the pigs are strong and lively, especially if the sow be full grown and heavy, otherwise they are in danger of being laid and tread upon, and killed. One pig more saved than leaving the sow to herself, amply repays all this extra attention.

The sows being somewhat feverish at farrowing should have what water they please to drink about blood warm, but very little food, and that of a light kind the first twenty-four hours. After this their feed may be gradually strengthened, and when the pigs get a week old, the dam should be fed all it will eat three times a day without cloying. All the whey and milk that can be spared, with a mixture of oat and barley with pea or Indian meal, of one part of either of the latter to three parts of the former, is highly recommended for nursing, together with an equal quantity of boiled or steamed vegetables. As soon as the pigs will eat, a small open box frame should be placed in the pen, under which they could run and be separate from the sows, a trough set there, and milk with a light mixture of meal and cooked vegetable roots, poured out for them. This greatly relieves the sow, and adds much to the growth of the pigs; they wean then without scouring, losing condition in the least, or being checked in their growth.

It is generally thought that pigs do as well to be weaned at six weeks old as later, for the little milk that each then gets is obtained by more or less

quarrelling, and adds a distaste to their other food; besides it is a great consideration to get them off the sow as soon as possible. Eight or ten great pigs tugging at her breast for two or three months, is hard to be borne, and is frequently very pernicious to her teats. In weaning, all but one should be taken off, put the dam on short allowance, and in two days, take the remaining pig away, allowing it at first to draw the breast twice a day, and then diminish till once in two or three days during a week, then turn the sow out to grass and leave off entirely, and commence gradually to put her into condition again. The Berkshires especially are great milkers, and must be well attended to at weaning time, or the breast will fill, become caked and swollen, and finally ulcerate, and be the cause sometimes of the death of the sow. Two litters are allowed per annum, and a preference for farrowing in this climate is given to the months of April and September. Farther south later and earlier will answer. A pig when first dropped is a very tender animal, and if the weather be too cool it will perish; the dam also is likely to become ravenous and devour her offspring, or refuse to nurse it.

After being weaned, pigs should be fed upon cooked food, at least for a few days; they will then very rarely scour, and if they have a dry, warm place to sleep in, covered from the weather, will not take cold or be afflicted with swollen head and throat, that too often destroys them. Night air is very pernicious to young pigs, and is the direct cause of most of the ills that affect them. In order to give them a handsome shape and good growth, some attention must be had to their food and accommodation. To their snug sleeping apartment in the winter, a large dry yard that the sun will shine in when out, should be appended for exercise, and in summer they ought to have the run of a good grass or clover lot, with pure water if possible passing through it. The best food that can then be given them, is as much milk, whey, and house-swall as can be spared, and a mixture of oat and Indian meal about half and half, with flax-seed ground with it, at the rate of a pint or so to the bushel, or for want of this a quart or two of oil meal may be substituted. All this, and more especially if it can be cooked beforehand, mixed with an equal quantity of steamed roots of any kind, such as potatoes, beets, &c., makes the most palatable, healthful and thriving food for young pigs and old, that I know of. There is a very great saving in cooking food for hogs, and making it pretty thin with water; the liquid alone, in this case, seems to go farther with them than the whole of the food uncooked. Repeated experiments have established the fact, that water, under these circumstances, becomes very nutritious. Shorts and bran, so much given to pigs, is most miserable food alone, and especially if used without being cooked. It almost invariably scours them, and under the most favourable circumstances I could never see much thrift from the feeding.—Cold swill, and above all if any frozen, is very pernicious; it is the cause of several diseases, especially that of casting the inwards, and ought never to be fed. When confined, either as store animals or fattening, all hogs should have a little sulphur and salt occasionally in their food, with pure water to drink at all seasons once or twice a day, and charcoal or chunks of rotten wood thrown to them, and be allowed now and then to come to the ground a short time for the purpose of rooting and eating dirt. They may not fat, or rather bloat up, quite so fast for this, but their flesh will be much superior, and the poor animal will be kept free from the fever that

otherwise so much torments it; and indeed, it is relieved, except in rare cases, of all other diseases.

Of the pathology of the hog, the writer acknowledges almost total ignorance; he trusts, however, that some one well qualified will soon be induced to come forward, and treat the subject with the ability that it so highly merits. In so doing, not only the more extensive breeder, but the public at large, would be placed under great obligations, for there are few families in the United States, out of our large cities, that, to use the Irish expression, do not "live neatly and keep their pig."

Buffalo, December, 1839.

A. B. ALLEN.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

Would you be kind, through the medium of your excellent work, to ask of your correspondents some account of a short useful breed of sheep, the Banboroughshire or Banffshire, as I can find no account of them in any work I have met with. Are they originally a distinct breed of long woolled sheep?

Much has lately been said about Italian rye-grass being, or not being, a perennial grass. I have some which has been mowed for four years, and the aftermath eaten with sheep, which is still very luxuriant. I have another field; the first year was mowed and the aftermath eaten with sheep, second year pastured with sheep, third year pastured hard with sheep, and now the sheep being removed for a fortnight, is uncommonly luxuriant. Another field, in which I sowed one bushel of Italian rye grass per acre, upon old sward which formerly was of the most meagre description, has been so much improved by it, as to materially alter the herbage, and what formerly would scarcely afford maintenance for anything, has these last four years been a good rough useful pasture, increasing rather than diminishing in the quantity of roots of the Italian rye-grass. My opinion is, sheep will leave every other description of grass untouched, so long as they can get the succulent stems of this grass, and perhaps injure it by eating it close; but that it is naturally perennial on dry soils I have not the least doubt. My soil is on a strata of magnesian limestone.

I have sowed it along with red clover, white clover, trefoil, and different sorts of rye-grass, rib-grass, timothy-grass, cocksfoot, and the natural grasses which you obtain by sowing hay seeds, but in every instance, I find the Italian eaten first, and young cocksfoot the second.

C. C.

July 5th.

THE WIRE WORM.

SIR,—Having been a subscriber to your valuable Magazine many years, I shall feel obliged if any of your correspondents would inform me what is the best method to destroy the wire worms. I have a piece of hop ground which is sadly infested with the depredator, and having tried lime, and other nostrums, I don't find any benefit. If any one, therefore, will be pleased to give me advice on the subject, I shall feel greatly obliged. I remain yours most obediently,

J. C.

Kent, 24th July.

ON A NEW METHOD OF FEEDING SHEEP ON TURNIPS.

BY JAMES STEWART MENTEATH, ESQ., YOUNGER,
OF CLOSEBURN.

(From the Quarterly Journal of Agriculture.)

(Concluded from page 36.)

4. That the *manure* of the sheep, fed with such a variety of rich food, will be of much better quality. It is a well known fact, that the better an animal is fed, the more valuable is the manure produced; and by giving oilcake, its fertilizing powers are nearly doubled. No dung is more valuable to the farmer than that of his sheep. It is united with a greater proportion of animal substances, condensed into a smaller compass, than in the dung of almost any other quadruped.

5. That it is one signal advantage in this management of turnips, that if any part of the field be poorer in its soil than other parts, it may be made equally rich and productive in bearing crops of grain and grass with the richer portions of the land. In feeding the sheep with cut turnips, they may be made to stand as long as it is wished on any particular part, and by judiciously removing the troughs to different parts within the fold, the manure may be equally well distributed all over it. There can be no more effectual plan than this of improving poor, sandy, gravelly soils. The flock confined within the fold, tread and render the earth more compact and retentive of moisture, and by their droppings, urine, and perhaps perspirable matters exuded from the fleeces while lying on the ground, make it fitter to yield heavier and richer crops of grass and grain.

6. That the *carcass* of the sheep is not the only part of the animal which is improved by this new method of feeding. The *wool*, which is an object of great value at the present time, is produced in greater quantity, and of better quality. The more improved higher condition of the sheep, influences the quantity and quality of the fleece.

"It ought never to be forgotten, that the growth of the wool is liable to be materially affected by the system of feeding pursued. It is essential to the evenness and strength of the staple, that the feeding of the animal should be uniform, without any sudden interruption or transition. Where this is suffered to take place, the natural progress of the wool is for a while most injuriously interfered with. It continues to grow, but the new fibre is unhealthy, and becomes so weak as to snap under the operations of the manufacturer. Much wool is injured in this way by the change between summer and winter keep; and sudden transition from rich to poor, and from poor to rich feeding, ought most carefully to be avoided."

The merino wool in Saxony, though a much colder climate than Spain, the native land of the merino sheep, we are informed from the best authority, has been greatly improved in fineness by great attention being paid to the treatment of these sheep. Indeed, in our own island, Lord Western, at Felix Hall, in Essex, has, by devoting similar attention to feeding, sheltering, and housing in bad weather in sheds with yards his merinos, prevented any deterioration in their wool. His Lordship's best fleeces, we are informed, are not inferior in any respect to any that are imported from Spain, Saxony, or Australia.

7. As another advantage resulting from this mode of feeding it is agreed that, according to it, there is a much smaller waste of turnip; that we have it in our power to give the animals just what kind and quantity of food we may think proper; that these useful roots, the farmers chief dependence for the winter keep of his woolly stock, may be preserved to a late season of the year, when provender is most in demand for them. It is the opinion of good judges that the slicing of turnips, and putting them into wooden troughs to be eaten by the flock, makes these roots go farther by one-fourth than in the old way of feeding. Every part of the root is rendered eatable. To make the turnip, therefore, go as far as possible in feeding stock of all kinds, whether in the stall, the farm-yard, or the sheepfold in the turnip field, let no farmer be without the useful turnip-cutting machine. No one in Scotland is ignorant how much our sheep suffer in a late, severe, backward spring. If any plan can be pointed out, upon which flocks may be better supported at this pinching time of the year, it surely is well worthy the attention of their owners to examine how far they can introduce it. And all these matters are of the greatest importance, and closely connected with the interest of the husbandman.

8. That wherever an experiment has been made to pen or fold upon a turnip field, two lots of sheep, equal in all respects as to age and condition, putting at Martinmas the one lot into one fold, the other into another, and continuing to feed regularly the two lots; shifting at stated times the fold to fresh portions of the field, the one lot to be fed in the usual way on the turnips, having also oilcake pounded, salt, and cut hay and straw given it, but the other to have the turnips cut into thin narrow slices and placed in troughs before the sheep, it will be found the lot which has had the turnips supplied to them cut by the machine, with the oilcake, salt, and cut hay and straw, will be as forward in the middle of February as the former lot would be in April. But, should the two lots be kept feeding for twenty weeks, the lot which has had the turnips supplied cut into thin narrow slices will fetch from 4s. to 5s. a-head more than the individuals of the other lot; that this increased value of the sheep will cover all the expense of oilcake, turnip machines, and the extra wages of attendance in working them; and that a feeder will receive a handsome return, remunerating him for what may be held by those unacquainted with this mode of feeding an extraordinary outlay.

Thoroughly convinced of the advantages resulting from this method of feeding sheep, the English agriculturists are strenuously endeavouring to promote the introduction of the plan into those places where it is yet unpractised. Accordingly, we observe at the meetings of local agricultural societies in various parts of England, that different influential individuals of these bodies are coming forward to press upon the notice of the other members the benefit of this system, which fattens the sheep sooner, and increases the fertility of the soil. Lord Huntingfield, at the meeting of the East Suffolk Agricultural Association, on the 12th of September, 1839, "recommended every one feeding sheep to cut turnips for them; instead of turning sheep into the fields among the turnips, as the advantage of cutting them by machines was seen by the tendency and aptitude to fatten the animals." Another gentleman, Mr. Shaw, at the same meeting, stated:—

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* See Complete Grazier or Farmer's and Cattle Breeder's Assistant, seventh edition.

"He agreed with Lord Huntingfield on the propriety of cutting turnips for sheep, instead of turning the flocks into the fields upon them, as had hitherto been the custom in this country. The system, he believed, was greatly increasing. For years past he had himself adopted the plan. He could not say, however, that the turnips went twice as far, but he believed that they went *one-third more than as far*; and if they made an addition of oilcake and cut hay and straw, feeding them with them as well as the cut turnips, they would find themselves amply repaid in their future crops upon light lands. He spoke confidently, because, where he did not formerly grow more than six coombs,* he had this year grown eight coombs; and that was the first time the crop had come round with wheat since the first time the turnips had been cut for the sheep, and oilcake and cut hay had been given them." (*Mark Lane Express*, September 23, 1839.)

In another part of England, viz., in Devonshire, we find at the meeting of the Taunton Agricultural Association and Cattle Show, at Taunton, on the 2nd December, 1839, Mr. E. A. Sandford, M.P., calling the attention of the members to the advantages of feeding sheep with cut turnips. "He advised them to draw their turnips, cut them with a machine, and supply the sheep with them in due quantities." (*Mark Lane Express*, December 9, 1839.)

Another illustration of the high estimation in which it is held in England, and of the anxiety of landlords to promote this improvement, is the fact, that premiums are offered by some to encourage the introduction of it upon their estates. On his rent day, in autumn, 1839, the Earl of Chichester offered a premium of a turnip-cutting machine to that tenant who had the best field of turnips, of not less than five acres, regard being had to the quality of the soil, and the general cultivation of the crops. (*Sussex Express*.)

In some parts of England the tenants have not turned a deaf ear to such important suggestions from their landlords, and are pursuing this new system of sheep feeding very extensively. The author of these observations was lately informed by a respectable tenant of the Earl of Leicester that he had fed in Norfolk last winter ninety-three score of sheep, folded on the turnip field, with these roots cut with the machine, together with pounded oilcake, cut hay and straw, salt, and occasionally bruised oats.

The preceding statements have been confined to the manner of fattening sheep profitably for market, when folded on turnips cut by machine. We might, however, have extended our observations, by pointing out the great advantages of taking greater care of our breeding ewes than we do, by giving them more shelter, and food of better quality two or three months before the lambing season commences. We are too much, in Scotland, disposed to manage our sheep, though the most profitable, with less care than any other of our domestic animals. We compel them to brave all the storms and hurricanes of winter. Were we, however, to expend on them somewhat of the attention we bestow upon our horses and cattle, and shield them by some shelter from the pelting of the merciless blasts of rain and snow, and feed them with some nutritious food, the flock would be much more profitable to its owner than at present, and many of those losses which of late years have but too often befallen the hapless ani-

mal be prevented. If some dry, snug, warm, sunny corner, not far from the barn-yard, were looked out, it would be no very costly affair for the storemaster to enclose a small yard with sheep-hurdles, of size to contain all the breeding ewes; to erect around the yard a low simple range of sheds, made out of any offal wood, or slabs or coarse boards about the premises. These sheds might be covered over with turf, broom, heath, or straw, if it could be spared. Let the breeding ewes be here confined every evening, and when the weather seemed likely to be stormy, wet, and boisterous, let them lie here, warm and dry, day and night. Under this management less tar and grease would suffice. The wool freed from these foul anointing substances would be whiter, and consequently bring a higher price. By bedding the sheep with straw, bracken or fern, or dried leaves, of which abundance in most places might be gathered in autumn, a great mass of valuable manure might be collected. The shelter of these sheds will ward off many fatal diseases to which the out-lying sheep are constantly exposed. By inserting, however, a letter on this subject, which appeared in the "*Mark Lane Express*" of 16th December, 1839, from Lord Western, of Felix Hall, Essex, our views on this subject will be more clearly conveyed than we can hope to express them in language of our own. With regard to sheltering sheep in winter, and otherwise managing them, Lord Western is surpassed by no breeder in the island, and any remarks proceeding from so high authority demand the most serious consideration of the intelligent sheep-owner.

"I have a flock of pure merino, and a flock of Anglo-merino, of which peculiar sort I have exhibited specimens at the Smithfield show and at Oxford, and shall again at Smithfield next month: I have now had three years' experience of the practice, and am decidedly of opinion, that the fatting stock thrive quicker, and the sheep with their lambs also do better than out of doors. I begin in November to put them into the yards at night, letting them out in the day. As the season advances I shorten their going abroad, till at length they are not allowed to go out at all, except that when there happens to be a fine sunny day in winter, I let the ewes and lambs out for two or three hours upon a piece of dry ground, on which I strew some cabbages or turnips. The yard of course must be well littered. I like the litter to accumulate to a considerable depth, so as it does not heat. I think the sheep tread the straw with their little sharp feet quite as effectually as bullocks; and the manure from them is better, dependent however upon what they eat, the higher they are fed, of course, the richer the manure. I place salt for them in the yards, and the ewes and lambs consume a large quantity, the young lambs eat it with avidity. The salt which I give is of pretty good quality, not rock-salt, but small salt of the inferior sort used at table. That sheep do not suffer from confinement I have abundant other proof; the merino rams fight so furiously that I often tie them up like horses in a stall, and keep them there from season to season, and they are as healthy as any that are out, and will get sometimes very fat. As a subject of curious experiment I kept three pure merino wethers every year in their wool, three successive seasons; from the time of their being sixteen months old till they were shorn of their three years' fleece they were never out of the house, and I never knew them otherwise than healthy and in good fleshy condition when stripped of their three years' old fleece. I sent one to Oxford that was exceedingly fat, after having a fleece taken from him that

* A coomb is equal to four imperial bushels.

weighed 28 lb., and I shall exhibit another next month extravagantly fat, with a fleece of 30 lb. weight. My folding-yards are spacious, and surrounded with sheds, these sheds are made in the cheapest possible manner, they are only ten feet deep and wide, and about six or seven feet high; built of that limited size, the wood which otherwise would be burnt is sufficient to build them, the posts are stuck into the ground with bearers across, and covered with haulm. Other materials better suited for the purpose may be used in some countries; furze will make good walls and covering also; some persons may think it good policy to build their sheds of superior construction, but excessive cheapness, though little durable, places them within the reach of small farmers with short tenures. I have now adverted to every circumstance calculated to recommend the practice of yard-folding of sheep, of which I am a decided advocate; and I protest I know of nothing that can render the policy of the system at all questionable, where the necessary means are attainable with any tolerable facility."

When turnips are grown on strong clay land, as in Ayrshire, and in other similar soils in Scotland, and cannot be eaten off by folding sheep upon them, they might be carted to such a sheep-yard, fitted up with sheds as just described by Lord Western, and there, being cut by machines, be given to the sheep, and in which yards they might be fed fat for market. The breeding ewes in all situations whatever, ought to have provided for them during the winter months such yards and sheds; and if erected of the same dimensions, and of the cheap materials recommended by Lord Western, there are but few store-farmers who would find them beyond their means. Having such care and such feeding bestowed upon them, fewer losses at lambing time, and earlier, larger, stronger lambs would be reared. We think these matters are well worthy the attention of the intelligent sheep-farmer.

In some parts of England we find farmers imitating Lord Western in feeding their breeding ewes during winter in sheds and yards. A respectable farmer in Suffolk states in the "Mark Lane Express," of December 23, 1839, "that he is now building a complete sheep-yard, with sheds, for 400 ewes, as his plan is to house them in winter. Last year he made 150 loads of manure, which would have been wasted or deposited where it would not have been available; and in my opinion it is equal to any manure for turnips."

An interesting experiment lately made with great pains and accuracy by Mr. John Wallbanke Childers, M. P., in feeding sheep in a yard with a shed, is detailed in the Journal of the "English Agricultural Society," vol. i. part ii. p. 169. This experiment supports the valuable advice given by Lord Western in the letter we have just inserted, on the great advantage of feeding sheep in winter in yards with sheds:—

"Having tried an experiment on the winter fattening of sheep this year, I think the insertion of it in your Journal may be desirable. It has for some time been my opinion that sheep would fatten more quickly in a yard than in the usual manner on turnips in the field. In consequence of this view of the case I last winter enclosed a small yard with posts and rails, and erected a low thatched shed, just large enough to allow a score of sheep to lie down at once. The floor of this shed was boarded with common rough slabs, and was raised eighteen inches above the surface of the ground, the boards being placed three-eighths of an inch apart, in order to allow the

free passage of water, and keep the boards dry, as my great fear was that the sheep might get the foot-rot.

"I then proceeded on the 1st January to draw forty wether hogs out of my Leicesters, and divided them into two lots, as equal in quality as I could get them. On weighing each sheep separately, I found the weight of one score to be 183 st. 3 lb., and that of the other 184 st. 4 lb. I put the first lot into the yard, and placed the other lot on turnips. The field was a dry sandy soil, and well sheltered, and peculiarly favourable and healthy for sheep. Each lot had exactly the same quantity of food given them, which was as follows:—"1st, As many cut turnips as they could eat, which was about 27 st. per diem for each lot. 2d, 10 lb. of linseed-cake, at the rate of half a pound per sheep per day. 3d, Half a pint of barley per sheep per day. 4th, A little hay, and a constant supply of salt. For the first three weeks both lots consumed equal portions of food; but in the fourth week there was a falling off in the consumption of the hogs in the shed of 3 st. of turnips per day; and in the ninth week there was a falling off of 2 st. more. Of linseed-cake there was also a falling off of 3 lb. per day. The hogs in the field consumed the same quantity of food from first to last. The result of the experiment is as follows:—

	20 Shed Hoggs.	Increase.	20 Field Hoggs.	Increase.
	St. lb.	St. lb.	St. lb.	St. lb.
January 1	183 3		184 4	
February 1 ..	205 0	21 11	199 8	15 4
March 1	215 10	10 10	208 2	8 8
April 1	239 9	23 13	220 12	12 10
Total Increase		56 6		36 8

Consequently the sheep in the shed, though they consumed nearly one-fifth less food, made above one-third greater progress. The circumstances of the experiment were, if any thing, unfavourable to the sheep in the shed; the turnips, by being stored in a house for their use, became drier than those consumed by the sheep in the field; and also in February the shed-hoggs were salved or rubbed with mercurial ointment, which is generally supposed to give a check to feeding sheep.

"N. B. The boarded floor was swept every day, and fresh straw was given after every shower of rain."

From this important trial of the comparative merits of feeding in an open field, and in a yard with a shed, Mr Childers establishes a very valuable fact, that shed and yard feeding of sheep economises greatly their food, and sooner fattens the animals, than leaving him to brave the inclemency of the elements out of doors.

In fattening of sheep, dryness of feet and of fleece are necessary; cold can better be endured than the former conditions. From the same experiment, we are also taught, that twenty sheep fed in the shed acquired not far from one stone per head more than twenty others of the same weight fed in the same manner in the field, from the 1st of January to the 1st of April. This increase of weight cannot be estimated at less than 8s. per head, and at 10 per cent. on the value of the sheep.

Having provided for the comfort of the breeding ewes, by sheltering them from the storms of winter in yards with sheds, let us not forget to provide the same comforts for the outlying flock folded on the turnip field, and consequently exposed to many a pelting shower of snow and sleet,

and many a biting blast. For that purpose, we think there might be contrived movable wooden sheds, which being placed on wheels, where the land was not too uneven, might easily and expeditiously be moved from one part of the field to the other, whenever it was intended to move the fold. The following dimensions are suggested :—

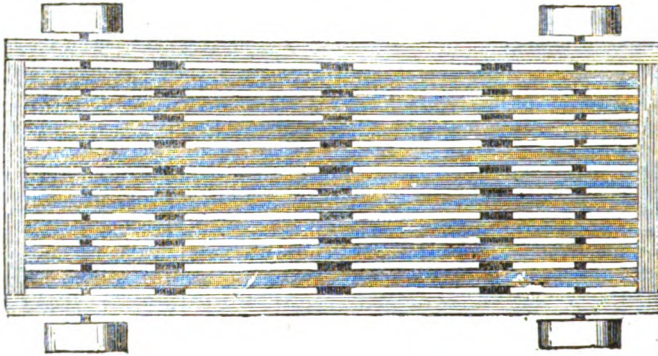
The shed to be made of any refuse sort of wood, to be about 7 feet wide, 5 feet high, and to be made in separate parts of 15 feet long each, and having a wooden floor or bottom. Thus the sheep would lie dry, as all moisture, from the boards or slabs being laid a little apart from each other, would pass away. This wooden floor to be placed on four iron wheels, which would raise the floor six inches off the ground. Into the wooden floor to drive four or more wooden posts, either

of fir or larch. Upon these the roof would be fastened.

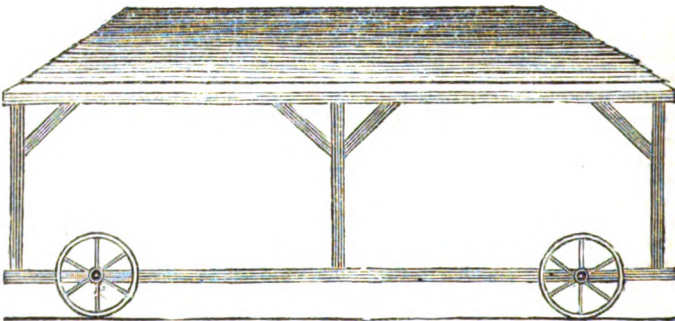
The bars or hurdles used for enclosing the fold against which the movable shed would stand, to be roughly closed up with slabs or boards to prevent the passage of cold and wet through them.

When it was wished to move the fold to any other quarter of the turnip-field, two men or a poney would not be long in drawing the movable sheds to any part of the enclosure. The expense of each of these portable sheds would not exceed 4lb. About one score of sheep would be contained in one of them. Under these dry, warm, portable sheds, the fattening sheep would be comfortably lodged in all bad weather; and thus lying warm and dry, they would sooner take on flesh, and yield more wool.

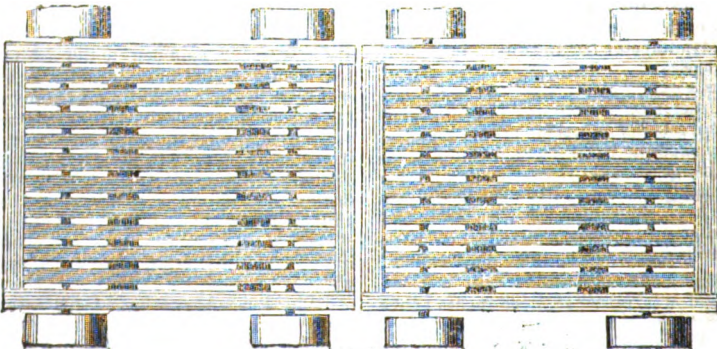
Floor of Long Movable Shed.

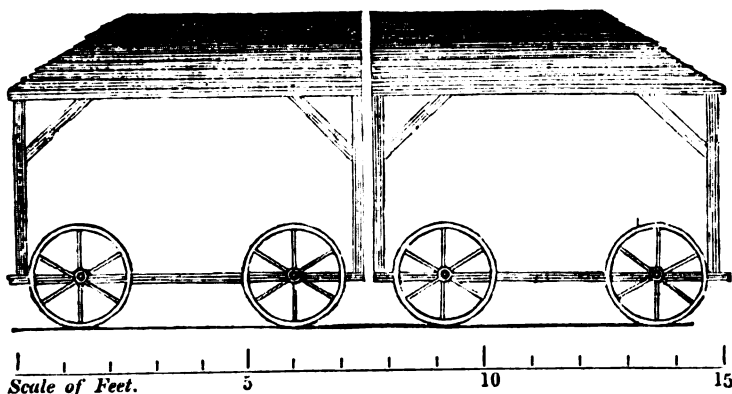
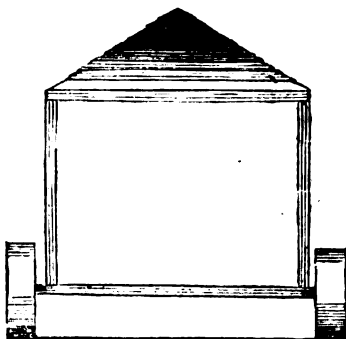


Elevation of Long Movable Shed.



Floor of two Short Movable Sheds, forming one long one.



Elevation of two Short Movable Sheds placed together, to form one long one.*Elevation of the end of either size of Movable Shed.*

In the particulars we have brought forward in favour of an improved system of feeding farm-stock, we have had it principally in view to call the attention of the Scottish agriculturist to the manner of feeding sheep on turnips in the eastern counties of England. Much however, of what we have stated in explaining the system of feeding sheep, is applicable to cattle. These animals, like sheep, have eight front cutting teeth, none in the upper jaw and only in the lower; and their front teeth in the lower jaw are liable to many of the accidents and changes from age that are attendant upon those of sheep. It is therefore as indispensable that cattle when fed on turnips, and which we wish to feed rapidly, and in the least wasteful manner, should have them presented to them cut into slices. The hay which is allowed them ought also to be cut for them by a hay-cutting machine. If this article be supplied them in racks, or in other ways, there will be a great waste, as the cattle, like horses, tread under foot nearly as much as they consume.

Whatever other food be given with turnips, let salt always be freely offered feeding cattle, as also cows, which makes the latter yield more milk.

We think that every one who reflects upon the subject will readily admit, that the mode of feeding which we have endeavoured to describe, is a material improvement upon that formerly pursued.

It recommends itself, not by any one, but many advantages.

1. It preserves the teeth of the hogg or young sheep, and the older animals; and, should these unfortunately have dropped out, enables them to

satisfy their hunger in a short time to rest, and to ruminate.

2. That they become fat in a shorter time.

3. This variety of rich food improves greatly the quality of the manure.

4. The poorer parts of any field may be enriched equally with the better parts of it, by keeping the sheep standing on them as long as it is thought advisable.

5. The wool, from the higher keep of the animal, is improved in quality, and increased in quantity.

6. The turnips can be husbanded, to feed more sheep, and preserved to a later period of the season, when they are most needed.

7. Experiments made upon two lots of sheep, in all respects equal, feeding the one in the old, the other in the new way, show the advantages of the latter over the former; the one lot, within the same time, greatly excelling the other both in flesh and fleece.*

* In confirmation of the statements we have advanced in favour of feeding sheep while folded on turnips, in the way just described, we have much pleasure to strengthen ours, by laying before the reader the opinions of one of the most intelligent and practical farmers in the Wolds of Lincolnshire. This gentleman, Mr. Francis Iles, of Barnoldby, not only farms his own beautiful estate, but rents a very extensive tract of land from the Earl of Yarborough.

This gentleman states, as respects the seventh statement we have put forward respecting the feed-

The above observations were collected during a recent visit to England. It is hoped the reader will overlook the imperfect and hurried manner in which they have been put together, and direct his attention to the considerations of the advantages which are certain to accrue to him by adopting the new and improved method of management pointed out. Our sole and anxious aim and

ing two score of sheep, one on turnips in the old way, the other by giving them cut by machines: "There cannot be a doubt, that the score which have the turnips cut for them will be much sooner fit for market, and will fetch from 3 to 6s., or, I think I might say, from 4s. to 8s. per head more than the others, that are not cut for them. There are many reasons why this should be the case: they get their food in a cleaner and more regular manner; and, when they become accustomed to the troughs, which they generally do in a few days, they can fill themselves in a much shorter time, consequently having a much longer period for rest, which is a very essential point. They also get their food much earlier in the morning, our plan being to cut a large tubful of turnips over night, which are served out to them the first thing in the morning, and during the time they are eating them, the man is cutting more for them, until they are satisfied, and go to rest; and, by the time they again rise, the troughs are all replenished, and so on during the day, always taking care to leave them full at night. Another reason why cutting turnips for sheep is so beneficial, is, that during the winter and spring months, the hogs lose their teeth always in the spring, and very frequently much earlier in severe seasons, from the turnips being hard from the frost. It is therefore obvious when this is the case, that cutting for them must be not only beneficial, but highly necessary, as it is impossible for them in that state to procure sufficient food in the natural way. Great regularity and good management, however, must be observed when cutting turnips for sheep. In fact every thing depends upon it, as, when the hogs have once become accustomed to the troughs, they require to be well served, and plenty cut for them, as they will not then look out for themselves, but appear to wait for a regular supply. I have in several instances seen the whole of the expense of cutting turnips thrown away by bad management, and want of regularity. It has become almost proverbial with us, "*better not cut at all than not cut enough*;" one man and a boy will cut for about 260 hogs, and do them well. I have at present four machines going, with a man and a boy to each; and these machines, worked by these hands, cut each for about 260 hogs. This season has been a very bad one for turnip sheep generally, having had so much rain. The sheep have scarcely ever been dry, and the land has been in a very dirty state. When hogs are fed with cut turnips, they are frequently made fat, clipped, and sold in the latter end of April and beginning of May. We sometimes give them barley and malt-combs. The latter answers well in the beginning of the season. We fancy it keeps them healthy. But oil-cake is more generally used than any other artificial food, as we find that the manure of the sheep fed upon it is highly beneficial to the land on our Lincolnshire Wolds. The sheep wooden troughs we use are of various dimensions and sizes. Those I use are about 10 feet long, 7 inches deep, with an 8-inch bottom. The trough is nailed upon two legs of wood, about 5 inches deep, placed about one foot from each end of the trough."

object in publishing these remarks, is the hope we cherish, that they may be instrumental in exciting inquiry among the intelligent tenantry of Scotland upon a subject so important.

Allusion having been made to Holkham, it may be observed, that, among the places visited, it is to be included. To the kindness and hospitality of the Earl of Leicester, the proprietor of that splendid estate, we are greatly indebted for an opportunity of inspecting all the operations, many of them highly interesting to the lover of good husbandry, in progress upon his Lordship's extensive and well managed farm. Here it was that the system of feeding sheep on turnips cut by machines were seen to the best advantage. Every one who visits Holkham must be struck with what that public-spirited and enlightened nobleman has effected during a long life devoted to agricultural pursuits. By continued and unceasing perseverance, Lord Leicester has converted an immense district of wilderness into a highly productive and beautiful country, yielding rich and luxuriant harvests,* adorned everywhere with woods in a most healthy and thriving condition, and managed on the most scientific principles, interspersed with farm buildings, commodious, and conveniently put down in the midst of the farm, in which will be found an industrious, hospitable, and well-informed tenantry, grateful to their liberal landlord for the comforts which they enjoy; among which, not the least is the secure holding of their farms, not the uncertain tenancy of from year to year, but on a lease of twenty-one years' duration. In this happy security in their tenure, we discover one of the main causes of the superior cultivation and prosperous condition of the tenantry upon the estate of Holkham.†

TRIAL OF STRENGTH.—Not far from this I saw a novel, and, to me, interesting trial of strength. The traces of a stout well-conditioned cart-horse, were attached to a splinter bar, which two men took hold of in their hands. They then placed themselves, so that their feet were against the side of a small grip in the road, and, in that position, tried their strength against that of the horse. He was, by word and whip, excited to put forth his utmost strength, but totally without effect. The two men held him back, without being moved from their position, so that he could not advance an inch. One of the men alone then tried the experiment; but this time the horse was easily victorious.—*Trollope's Summer in Brittany.*

* We are assured, from the very best authority, that, forty years ago, at the seaport of Wells, not far from Holkham, not more than 10,000 quarters of wheat were annually imported, for the supply of the neighbourhood. But now, from the great improvements of Lord Leicester on his estates, the same little port exports 20,000 quarters of wheat, though the population has perhaps doubled, or more than doubled, in that period.

† Having submitted these remarks on the improved method of feeding sheep, while folded upon turnips, we feel exceedingly anxious that it should be adopted more universally in Scotland. Might we suggest (without presuming too much) to the Highland and Agricultural Society of Scotland, to take into consideration the propriety of holding out a premium to those who should follow the plan described, and carry it out in the most perfect manner?

ON ERADICATING WEEDS.

"One year's good weeding will prevent seeding,
But one year's seeding makes seven years weeding!!!!"

SIR,—Your kindness in publishing my former letters prompts me to communicate something relative to the subject I have chosen for my motto, leaving it to you to publish or suppress, according to the merits or demerits you find therein. The present year bids fair to be one in which attention to weeding (strangely neglected hereabouts,) will be much called for, from the heat in April, and part of May, and the moisture since so favourable to the growth of "every plant, herb and flower." The infatuation of allowing weeds to grow and ripen with the crops has been often noticed. Still much remains to be said, and more to be done on that head, for active exertion becomes now necessary. I have often thought of the advice to farmers negligent in this all-important matter—"if you are so partial to weeds that you cannot do without them appropriate part of your land to their exclusive use, but on no account allow them a place devoted to other purposes." As surely as men do not gather grapes from thorns, or figs from thistles, so surely will they if not removed spring up with, and choke them. However, my present purpose is not to dilate on the evil of couch-grass, docks, &c., or any of the thorn or thistle family, highly injurious though they be, floating their seeds on gossamer wings wafted by autumnal gales to fields though distant, still under their baneful influence. A greater and more positive evil, sir, demands attention, at least in this country, for which it has so often been truly said, that "God has done so much and man so little." I do not exaggerate, sir, when I assure you, that many fields sown with Spring crops, such as oats, barley, and potatoes, instead of wearing nature's livery "sight-refreshing green," are like "blossomed furze unprofitably gay." Many such fields I could now point out, the crop of which I would not accept on condition of weeding it properly; for added to the expense (and heavy it would be,) I would only expect a short crop from the injury of that operation. I am not enough of a botanist to give the class, order, or even the name of the nuisance; and, perhaps if I was, a description may be more useful to those for whose information I write. I have observed three kinds, which I call wild rape, wild mustard, and wild turnip, from their likeness to these when under proper management; each variety producing yellow blossoms, and round seed containing oil. All seeds containing oil remain an incredible time without vegetating, when deep in the land, and only when by the action of the plough, harrow, &c. brought to the surface are seen to grow. Such I reckon the different cabbage tribes, also mustard, turnips, flax, hemp, furze, &c., the seeds of which when buried deep in the earth by the plough or spade, will remain for centuries in good preservation, and will certainly grow when brought to the surface by any of the afore-mentioned causes. When a seed once vegetates, and the young plant is destroyed, that seed will never grow again. Hence we may conclude that drilling green crops, especially potatoes, must be a great means of cleaning land infested with these seeds. To be more effectual an interval of a few days ought to be between the ploughings, hoeings, earthing up, &c., to allow time for the seeds brought to the surface to grow, that they may be destroyed, and others brought up by the next operation. A naked fallow also, using the same method of allowing between the several ploughings, harrowings, &c. time for the upper seeds to grow will have a good effect. Wheat sown in autumn seldom suffers much from these weeds, the frost of winter destroys them. The only means of removing them from corn crops is by hand, and the instant the yellow blossom appears, or even before, if possible, they should be drawn up, drawn out and destroyed. For if suffered to remain scattered about where they grow, many plants will produce seed, though pulled up before the pods are formed; and though such seed may be deficient in fulness, size, and colour, it will be found not deficient

in germinating powers, or in mischief to succeeding crops. In such times as the present, when we are paying cash for the produce of foreign countries to feed a half-starved, and whole idle population, it may not be amiss to call the attention of the thinking part of the community to this subject. For as we are now suffering a twofold calamity from the neglect of former years, to wit short crops and an increasing tendency to weeds, so doubtless will our successors suffer equally, or in a greater measure, if we fail in checking this evil. How many who are willing to work, are for want of it, wanting every thing—home, food, clothes? in short everything. The man who makes two blades of grass grow where only one grew before deserves well of his country, and the man who makes only one weed grow where two usurped the place, is no less its benefactor. Having trespassed thus far on my own limits, and on your columns, I now conclude, and remain,

Faithfully, yours, AN IRISH FARMER.

Kilkenny, June 8.

NEW SOUTH WALES.

It appears that the export of wool during the current year is expected to be no less than seven millions of pounds, being nearly a million more than 1839.

The following table has been published in the Sydney papers. It shows the great value of the British trade with New South Wales.

Return of the declared value of British and Irish produce exported to New South Wales in the year ending the 5th of January, 1840, with the proportion to similar exports from the United Kingdom in the preceding year to other countries.

The declared value of exports to New South Wales exclusive of the other Australian colonies, 5th January, 1840	£1,173,440
Exceeds the declared value of exports to Sweden	£102,647
Exceeds the declared value of exports to Norway	77,485
Exceeds the declared value of exports to Denmark	181,404
Exceeds the declared value of exports to Prussia	155,223
Ditto year ending the 5th of Jan., 1839, by more than one-half, amounting altogether to	516,759
It exceeds by one-tenth that of Belgium....	1,068,010
It exceeds by one-tenth that of Portugal....	1,165,395
It almost equals that of China	1,204,356
It almost equals that to the Australian Colonies generally	1,336,662
It is only one-fourth less than to Russia....	1,663,243
It is only two-fifths less than to Turkey	1,767,110
It is about three-fifths that to British North America	1,992,457
It is about one-half that to France	2,314,141
It is about three-fifths that to Italy	3,076,235
It is about one-third that to British West Indies.....	3,392,441
It is about one-third that to Holland	3,549,429
It is about one-third that to the East India Company's territory	3,876,196
It is about one-fourth that to the States of South America.....	4,726,905
It is about one-fourth that to Germany	4,998,900
It is about one-sixth that to the United States of America	7,585,766
The official value of exports on the 5th January, 1840, to New South Wales, was—	
British and Irish produce and manufactures	1,440,446
Foreign and Colonial merchandise	289,072

Total.....£1,729,518

Employing, with passengers, 416 vessels, with a tonnage of 48,911 tons; in return for which exports, this colony sent back in 1839, 6,894,864lb. of wool, besides oil from the fisheries.

In the month of January 990 free emigrants, and 213 convicts arrived at Sydney.—*Colonial Gazette.*

TO THE LANDLORDS OF ENGLAND.

GENTLEMEN,—In a former letter which appeared in the *Mark Lane Express* of June 8th, and in the June number of the *Farmer's Magazine*, I expressed my opinion that very great advantages would arise if the practice of letting farms on long leases, and of permitting a large proportion of the pasture lands throughout the country to be broken up, were universally adopted. I then stated my ideas fully on the former of these two subjects, and it only remains for me now to say a few words upon the latter. I cannot but think that if you were to bestow upon the subject half the consideration which its importance demands, you would not fail to see the superiority of the alternate system, especially when you remember that it is sanctioned by long experience in those parts of the kingdom where the cultivation of the soil has attained the highest state of perfection.

Much prejudice has been excited against the *breaking up of old turf*, as has been the case with many other excellent practices from similar causes, because some few people have run wild on the subject, and have asserted that *the whole* of the pasture lands of the kingdom, without excepting even the richest watered meadows, ought to be brought under the plough. In other cases, as for instance, during the late war, when from a temporary rise in the prices of agricultural produce, proprietors have allowed a part of their grass to be broken up, the farmers, tempted by the certainty of a large immediate profit, have taken successive crops of wheat and other grain from the "*fresh land*," thus exhausting it to such a degree as to render it unproductive for many years. In this way discredit has been brought upon the system itself, though had it been followed with judgment, very different results might have been expected.

But at such a period as the present, when we are making such rapid advances in agricultural improvement, when we have a Royal Society established among us for the purpose of bringing the old science and experience of the country to bear upon every subject which promises advantage to the landed interest, when large districts in various parts of the kingdom are teeming with a super-abundant population—a population, I believe, in most cases willing to earn their bread with the labour of their hands, if they had but the opportunity of doing so—surely at such a time as this, it is the duty of the landlords of England to shake off the trammels of prejudice, instead of being a clog upon the industry of their tenants, to take the lead and encourage them in every improvement, and when a system is offered for their adoption, sanctioned by the long experience of a sister country which promises to confer such important benefits upon all classes of society; the least they can do is to weigh well its merits, and unless the objections to it are great indeed to give it a fair trial.

Gentlemen,—I will not press upon you the argument that I might draw from the theory of fecal exudation, because as yet no *positive proof* has been discovered of its truth, although it must be allowed that facts are very strongly in its favour: neither shall I lay much stress upon the immense preponderance of useless or noxious weed in most old pastures, as that has been brought forward so often that it must immediately occur to every one as soon as the subject is mentioned, but I should like to bring before you the following considerations which

I think will be admitted by most of those who have paid much attention to the subject.

First—The increase of produce, and therefore of rent, which may be expected.

Second—The economical application of manure, large additional quantities of which would be raised.

Third—The experience of the best farming districts in Scotland.

Fourth—The employment in populous districts, and thence the decrease in the poor rates, and the comfort and prosperity of the agricultural labourer.

I believe no one will deny that the quantity of grain raised in this country would be enormously increased under the alternate system; but it may not perhaps be as generally admitted that the produce of the dairy and grazing departments would suffer little or no diminution. When however it is remembered that a large breadth of land would annually be sown with clover, vetches, and other artificial grasses, the produce of which, acre for acre, would in most cases afford double the weight of food which could be obtained from old pasture, and that that food instead of being destroyed by the treading of large animals would be mown and carried to the yards for the use of the cattle, it certainly does appear to me that so far from diminishing, their production must greatly increase.

If, for the sake of argument, it were admitted—which I am by no means disposed to do—that a cow will not give so much milk, or a feeding beast lay on flesh so fast when soiled in yards, as when allowed to graze at liberty in the field; still it must be remembered that two or three times as many cattle might be kept on the same food, and that although there might be a trifling loss upon the individual animal, it would be repaid over and over again by the additional number.

Secondly—Think of the great advantages to be gained by the increased quantity and improved quality of the manure that would be raised. The dung of cattle in the fields falls in one spot; all the moisture, which is the most fertilizing part of it, is dried away by the sun and air, and nothing remains but a worthless pancake, which prevents the growth of grass for a considerable time, and eventually produces very little good. On the contrary, were the soiling system adopted every particle of manure would be made the most of, it would be carefully turned and prepared before it is taken out on the land, and when carted out, it would be ploughed in immediately, and thus preserved from the deleterious effects of the sun and air.

The land which is now in pasture would be producing straw for litter, as well as artificial grasses for soiling the stock. I do not hesitate to say, that at least one-half of every load of farm-yard manure which is laid upon grass land is totally lost to all useful purposes, simply because it cannot possibly be protected from the waste arising from exhalation. What then must be the loss occasioned by allowing the dung to drop from cattle as they stand in the fields, without being mixed with straw, and without being fitted by previous preparation to afford immediate food to the roots of vegetables?

It may be said that these observations do not apply to the breaking up of the old turf, but simply to the advantages of the soiling system, which at first sight appears to have little to do with our subject; but I contend that where a large proportion of any farm is allowed to remain in permanent pasture, the soiling system cannot be adopted on a large scale, and therefore that any argument in favour of the latter may be applied with equal force against the former.

Thirdly.—The long practice and experience of the most highly cultivated districts in Scotland is so notoriously in favour of the alternate system, that it is scarcely necessary for me to say more about it. I would merely refer any one to Sir John Sinclair's work on the Husbandry of Scotland, a book written, as I believe, nearly thirty years ago. In a long chapter, near the commencement of the second volume, he collects the arguments on both sides, and comes to the deliberate conclusion that permanent pasture, except to a very limited extent, is perfectly unprofitable. So early did the agriculturists of Scotland find out a truth as yet undiscovered, or at least not acted upon throughout the greater part of England. I lay great stress upon this argument, for I consider it a very important one.

Fearfully—There are several districts of this country swarming with an idle, and therefore, for the most part, a depraved population. Inhabiting miserable huts, clothed in rags, and subsisting upon potatoes, they at present either drag on a wretched existence, a burden to themselves and to their parishes; or it may be still worse, they engage in dishonest practices, and help to fill the prisons of the kingdom. In such districts the advantages of the alternate husbandry are increased tenfold: every philanthropic and charitable motive is in this case added to those detailed above. I do not mean to charge the landlords of England with insensibility to the distress of their poorer dependents, or even with backwardness in alleviating their condition: such an accusation, I most gladly admit, would not be borne out by facts; but when I see, as has been the case more than once, a parish circumstanced as above described, and at the same time containing a large extent of grass land perfectly adapted to arable cultivation; when I see that under the present system that land does not maintain one-fourth of the families it is capable of supporting, I never can persuade myself that the landowners in such a district have ever seriously considered the subject, or that any thing more is necessary to secure the adoption of the alternate system than to lay before them the simple facts, with the arguments on both sides, firmly persuaded as I am that their interests are in this case identical with those of the unemployed poor.

I am not one of those who advocate the indiscriminate breaking up of every field of old pasture: there are of course situations, where, from local causes, a small extent of permanent grass is both convenient and profitable, such for instance as very rich old pastures in dairy districts, good watered meadows, steep acclivities where a plough could not work, very poor stiff clays that would not pay for cultivation, orchards in fruit counties, &c. &c. All that I maintain is this: that there is a very large extent of grass land in this country which might be broken up with great advantage to the proprietor, the occupier, and the public generally.

Since the above was written, I have seen in *The Mark Lane Express* a letter, signed by "A Landlord," inquiring who would break up pasture land with a repeal of the corn laws hanging over his head? Gentlemen, my answer to this is, that if the alternate system were extensively adopted, the corn laws would become a dead letter; the increased quantity of grain we should raise would effect their repeal to all practical purposes. The price of grain would fall, I admit, but the farmer would have a larger quantity to sell, which would more than make up for the decline in price. It must be more for his interest, and certainly for that of the community, to sell one hundred bushels at five shillings than fifty bushels at eight. The corn laws ought not to be

repealed; every principle of national justice would be violated if such a measure were adopted, but I do think it is incumbent upon the landlords and farmers of England to use every exertion to raise such a quantity of corn as will prevent the necessity of foreign importation. I maintain that this is in their power, and as long as they take no steps for the attainment of so desirable an end, they furnish their opponents with the only reasonable argument they have to advance in their favour.

The commutation of tithes has taken away another obstacle to this system. Fresh broken up land will no longer have to pay more tithes than it did while in grass; this will make a difference of some shillings an acre.

Gentlemen, I have now laid before you most of the arguments which occur to me at present for the adoption of these two practices, to my mind, most essential to the advance of agricultural improvement. I hope that some of you may be induced to consider the subject in all its bearings; and if, in consequence of what I have written, one long lease shall be granted, or one field of permanent pasture shall be broken up, I shall consider that these letters have not been unproductive of good. These subjects have been mentioned from time to time by individual writers in *The Farmer's Magazine* and other agricultural periodicals, but they do not seem to have awakened any general interest; the letters have seldom been replied to, and the arguments on both sides have never been canvassed, and it is principally for this reason that I have thus formally attempted to engage for them the consideration of the agricultural world.

I have the honour to be, gentlemen, your obedient servant,

L. B. W.

June 24th, 1840.

THE TURNIP FLY.—Although numerous remedies have been recommended to prevent the devastating ravages of this dreaded though minute insect, yet we gladly avail ourselves of any further information calculated to remedy the disasters it so frequently produces. In a work lately translated from the German of Vincent Köllner we have the following:—"M. Wundram, a clergyman at Danne, in Hanover, has proved, by many years' experience, the efficacy of the following recommendations; they are practical on a large and small scale, require scarcely any expense, and take proportionally little time. These remedies consist in the employment of infusion of wormwood and road dust. Boiling water is to be poured on a handful of wormwood, and suffered to stand from 12 to 24 hours, so that it may be perfectly cold; then put the plants that are to be planted out into the infusion, with their leaves downwards, as far as the stem, so that their roots may not be wet, and then put them into a cellar, or some other cool place. In six, eight, or ten hours afterwards they may be planted with the certainty that scarcely an *earth-flea-beetle* (another name for the same insect) will attack them. The bitterness lasts so long that the plant seldom requires to be sprinkled in its new station, unless frequent heavy rains fall soon after planting it out; then it would be a good thing, the next fine day, to sprinkle the leaves with this infusion, by means of a wisp of straw. Young plants and seedbeds, whether sown with the various sorts of cabbage and turnip seed, radishes, cresses, or tobacco, &c., will likewise be successfully secured from the *earth-flea-beetle* by a gentle sprinkling with this infusion of wormwood. Plants may also be rescued from the greedy voracity of these small devastators in a more simple and easy manner by the application of the second remedy—viz., road-dust. The dust of chalky stones is to be gathered on the road in a fine day, and stowed up in a dry place for future use. As soon as it is perceived

that the earth-flea-beetles appear on seed or plant beds, a night must be chosen when a great deal of dew has fallen; and, while the young plants are still wet, they are to be thickly sprinkled with the road-dust, till they look as if covered with powder. Whether the dust is injurious to the bodies generally, or only that by covering the leaves it obstructs or is injurious to the action of their masticating organs, is not known; but the earth-flea-beetles all at once disappear from the seed and plant beds, particularly if the sun shines brightly the following day, and the dust is dried on the plants. If heavy rain falls immediately after the first sprinkling, and washes off the dust, it must be repeated as before. The application of the infusion of wormwood and the sprinkling with road-dust are practicable also in field cultivation. M. Wundram asserts that he has always preserved his flax and summer and winter corn, as well as white turnip field, from the *hallice*, by these means."—*Barrow's Worcester Journal*.

OVER STUFFING BREEDING STOCK.—FEEDING OFF TARES WITH SHEEP, &c.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—All agriculturists, desirous of benefit from the improvement of stock, should carefully peruse the letter in your last paper, bearing the signature of a member of the Royal English Agricultural Society; I called attention to the subject last year, immediately previous to the Oxford Meeting, but I fear with as little success as the present complainant is likely to experience; for as long as such leading stars as Lord Spencer and other noblemen, amateur agriculturists, will take the lead in contesting who shall produce most waste (as the fat we see on prize animals undeniably is,) instead of the most eatable, wholesome mutton or beef, so long will the stars of a lesser order imitate the mischievous example. I happen to live in the neighbourhood, where the successful candidate for South-Downs, at the Oxford meeting, feeds his show-sheep; I know they neither had the rain or dew of Heaven on their backs for six months previous to the exhibition, and that the lambs were never in an arable field!! Again; I was examining the wool of one of the prize Cotswold rams, when I was requested very civilly, certainly, not to touch it, lest I should make its back sore! the skin being distended to its utmost stretch, by means of cake, corn, and unnatural housing—are these the objects, I would ask, of the practical members of the Royal Society? I trow not, and by the preference given to such unnatural and expensive forcing, I know that three-fourths of the best breeders are deterred from exhibiting. In Hampshire, we get our stock fatter than most palates would fancy, in the open field, consuming the produce where it grows—the grand object of the green crops system on all light soils; why then should we, and others like us, pursuing as I believe on all hands will be admitted, the very life and soul of good husbandry, in thus consuming and spending on arable lands, the green crops raised thereon as dressing for the next corn crops, be driven from the field of competition, merely because those to whom expence is no consideration, are permitted to hide all the defects of growth, by overloading the animal with useless fat, unnaturally acquired in barns or stalls? I contend, Sir, that the real symmetry of a sheep is not to be ascertained, when so loaded; its constitution is

lastingly injured; its progeny is sure to be weakly and degenerate. I am aware of the difficulty of confining competitors to any particular mode of feeding, but I would suggest the following plan as an antidote to over-fattening. Let the standard of merit be the possession of a majority of good points, such points to be defined in printed rules; these points are best developed in condition of mediocrity, and when the animal shall be so overloaded as to render it difficult for the judges to ascertain *any one* point correctly, let it be discarded as ineligible to compete. On the subject of

FEEDING OFF TARES WITH SHEEP.

Observing no answer given to your correspondent "Northern," I beg to give him below, the system we pursue in Hampshire, in sowing and feeding off this valuable green crop. On quick, moderately good soils, we begin sowing them early in September,* on the wheat stubbles which we intend for backward turnips the following season; we sow at intervals of a fortnight, so that the tares may not all come to maturity at once, continuing up to the first week in November. When we have sown all the land, which seems fitted to be followed with turnips, we sow the remainder of the crops on such *strong* land, after rye-grass or clover, as is intended for wheat the following year; on this description (strong) of land we consider tares a good preparation for wheat. It is our custom to make off our sale lambs at a fair (Overton,) held on the 18th of July, then from five to six months old; with these we begin feeding tares about the 1st of June, waiting, however, if possible, until the blossom begins to appear, considering them then more nutritious and wholesome. We set out three pitchings, or folds of tares; our sale lambs go first, and have two of these pitchings a day, cropping off merely the tops, or about three inches in length of the haulm; the stock or ewe lambs follow next, and the stock ewes come last, and clean all up, with the addition of a picking of sainfoin or clover (there is no need of both); a good description of wether Lamb, will, at the above age, arrive at 7, or 7 $\frac{1}{2}$ stone of 8 lbs., without corn or cake, and go to fold every night: we consider tares the very best of food for forcing lambs in dry weather; in wet, they should have more outlet; if a very bulky crop, it is best to cut them up, and give them in racks or cages for ewes or wethers, but this system will not do for forcing young lambs, as without a choice, and plenty of room to pick, they will not thrive. The small quantity of manure dropped by the lambs, over, comparatively, so large a space, does not in the least injure the feed to the flock coming after.

As to the quantity of sheep a ten acre field will carry, much of course must depend on the crop. Half an acre of good average produce, will maintain 200 lambs and 200 ewes per day, in good condition. I am Sir, yours respectfully,

J. T. TWYNAM.

Whitchurch, Hants, June 25th.

PALM TREE.—The Palm tree is found in a variety of the warm countries in the south of Asia, and the north of Africa; they are numerous on the banks of Jordan, but the best were those around Jericho and En-gedi, which latter place is for that reason called Hazazon-tamor, the cutting of the palm-trees. This

* Of course I am here speaking of winter tares, if any are sown after the period named, it is on good land, well manured, early in the month of February.

tree grows very tall and upright, and its leaves retain their greenness throughout the whole year; the more it is exposed to the sun the better is its growth. Palm-trees produce but little fruit, till about thirty years old; after which, while their juice continues, the older they become the more fruitful they are, and will bear three or four hundred pounds of dates every year. The date is a most sweet, luscious kind of fruit, on which most of the inhabitants of Persia, Arabia, and Egypt entirely subsist. A species of rich honey or syrup, and a spirituous fermented liquor called araky, are obtained from it; there is also extracted from the palm tree a kind of wine, which is perhaps what the Scripture calls *shikhar*, or strong drink. As the sap is chiefly in the top of the tree, when they intend to extract a liquor from it, they cut off the top where there is always a tuft of spring leaves about four feet long, and scoop the trunk into the shape of a bason; here the sap ascending lodges itself at the rate of three or four English pints a day, for the first week or fortnight; after which it gradually decreases, and in six weeks or two months the whole juice will be extracted. As palm trees were accounted symbols of victory, branches of palm were carried before conquerors in their triumphs; and in allusion hereto, the saints are said to have palms in their hands, to denote the victory over sin, Satan, the world, the persecutions of Antichrist, &c. Rev. vii. 9. A remarkable experiment to prove the fructification of this tree, occurs in the 47th volume of the "Philosophical Transactions." There was a great palm tree in the garden of the Royal Academy at Berlin, which flowered and bore fruit for thirty years, but the fruit never ripened, and when planted it did not vegetate. As this tree Linnæus discovered to be a female plant, and as there was no male palm in its vicinity, the flowers never came to maturity. At Leipsic, twenty German miles from Berlin, was a male plant of this kind, from which, in April, 1749, a branch of flowers was procured, and shaken so that the dust, or farina, fell upon the flowers of the unfruitful tree. This experiment was so successful, that the palm tree produced more than a hundred perfectly ripe fruit, from which they had eleven young palms. On repeating the experiment next year, the palm tree produced above two thousand ripe fruit. This experiment fully established the fact attested by the ancients concerning the palm tree, which some have regarded as fabulous. This tree exhibits great variety in fruit, size, quality, and colour; twenty different kinds have been enumerated. Perhaps no tree whatever is used for so many and such valuable purposes as the palm or date tree; even the stones are given to camels and sheep as food.—*Bible Botany.*

SMALL ALLOTMENTS.

A large landed proprietor in this county, wishing to promote Spade Husbandry from seeing its favourable results in your valuable Magazine, has determined to divide an overgrown farm into small Holdings. Any of your correspondents will do much service by pointing out a plan by which four or five acres under the spade (with the assistance of a donkey and cart to draw out the dung,) could be made most beneficial to an industrious man with a family, all of them (except the youngest) able to render some assistance in dibbling, weeding, &c.—The question is, whether a man so situated can manage such a quantity of land as would enable his family to live comfortably, and whether he would not have some spare time to assist his neighbours. A few men who could be depended upon for a job by the piece would be desirable in any place, and some gentlemen in this neighbourhood contemplate advancing the sum necessary to try this experiment, proposing to give you from time to time an exact account of the results. I am, &c.,

A RESIDENT NEAR LANGLEY, SUSSEX.

OBSERVATIONS ON MR. WILSON'S PAMPHLET, ENTITLED "INFLUENCES OF THE CORN LAWS, &c."

TO THE EDITOR OF THE LEEDS INTELLIGENCER.

SIR,—My attention was first called to this publication by the high encomiums passed upon it by the Anti-Corn Law press, and more especially by extracts published in the "Leeds Mercury" of the 18th of April. The table there sets forth is a most valuable document, and contrary to the intention of either Mr. Wilson or of the editors of the Mercury, affords such abundant proof of the excellent working of the present corn laws that, after a calm and dispassionate examination, no one, I think, can deny that these laws are highly beneficial, and ought to be preserved; all this I said in a letter dated the 23rd April, and published in the "Leeds Intelligencer," and other papers. Having been thus called upon, I have read the book, and from the style in which it is written, I am not surprised that it should have attracted notice. There are many passages in it which I should have been proud to have called my own; it does not deal in that vulgar abuse and vituperation too common in works advocating a repeal of the corn laws. But there is not in the whole book one line to prove that the present corn laws have acted prejudicially on the country, nor yet one to show that a repeal of them would produce the slightest benefit. The fundamental argument of the author is intended to show the injurious effects of fluctuations in the price of wheat, and that the present corn laws necessarily produce great and frequent changes of price; he calls these "the extraordinary fluctuations which have taken place of late years in the price of wheat." This he says, "must ever continue to be the result of protective and prohibitory laws, because from this necessary tendency the whole of the evils of the present system have arisen." In speaking of the prejudicial consequences of the present corn laws and those of 1815, he says, "the most striking feature is the great inequality and fluctuation of price;" he says also, "no article of extensive consumption in this country ought to be, from the nature of its production and consumption, so free from fluctuation as wheat." I cannot possibly agree in this opinion. Wheat in its production is subject to vicissitudes of great extent; even in this happy climate a difference of produce amounting to one-fourth or one-sixth has been often known, whilst the absolute necessity of it makes the consumption regular. Mr. Wilson says, "it is therefore plain that inequality of demand cannot be the cause of fluctuation of price." True, and this very equality of demand, with inequality of supply, has, and must for ever, I apprehend, occasion fluctuation of prices. If bread corn were as unnecessary as nutmegs, or other luxuries, a high price would lessen the consumption; so far from this being the case with wheat, I fear the poor man, when bread is dear, eats less meat, and therefore requires more bread than usual. But as far as I know, it has ever been a rule in logic first to establish the premises upon which the argument is founded. Mr. Wilson has not done this, nor is it possible for him to do so, because the assumption has no foundation in truth. In answering this, the first and greatest charge which Mr. Wilson has made against the corn laws, I shall of course confine myself to the present corn laws, it being both useless and absurd to defend laws which have long since been repealed. Now it is quite impossible to suppose that Mr. Wilson has made this heavy accusation against the present corn

laws, for the purpose of misleading his readers, at the same time it is difficult to imagine how such an acute writer could have overlooked facts which had been publicly stated over and over again, and the truth of which could have been so easily ascertained. To show how much Mr. Wilson errs in speaking of the ill effects of the corn laws, when he says "the most striking feature is the great inequality of fluctuation of price," I will quote from a table published from Parliamentary returns, which gives the price of wheat in each year from 1797 to 1840. This table shows the rate of fluctuation per cent. in every period of five years down to 1833: thus from 1797 to 1802 the fluctuations are stated to be 220 per cent.; from 1802 to 1807, 100 per cent.; from 1807 to 1812, 74 per cent.; from 1812 to 1817, 183 per cent.; from 1817 to 1822, 143 per cent.; from 1822 to 1827, 81 per cent.; and from 1828, the first year of the present corn laws, to 1833, the fluctuations only amounted to 40 per cent. As this table goes no further, I must myself calculate the next five years, but to remove all doubt of the accuracy of my calculations, I will give the Parliamentary returns for these five years; they are 1833, 53s. 1d.; 1834, 46s. 2d.; 1835, 39s. 4d.; 1836, 48s. 6d.; 1837, 55s. 10d. The fluctuations are therefore nearly 42 per cent., and I can see no reason why the fluctuations in the following five years should be much greater. The steadiness, as well as the moderation of the prices of wheat in the last two years, notwithstanding the very great deficiency of the crops, prove how much the present corn laws tend to keep prices equitable. I therefore think the assumption that the corn law is injurious, by causing fluctuations in the price of wheat, is disproved, and of course all the arguments founded upon it perfectly useless. The average amount of fluctuations in every period of five years for the thirty years immediately preceding the passing of the present corn laws having been 133 per cent., and the average of each five years since the present law being only 41 per cent., the proofs of the advantage of the present corn law in preventing great fluctuations in the price of wheat is so triumphant as to leave no doubt of it.

There are two other positions which Mr. Wilson seems anxious to establish—one is that the fluctuations in the price of wheat are not to be attributed to good or bad seasons. He says, "we must at once banish from our mind the commonly received opinion that the fluctuations of prices are caused by favourable and unfavourable seasons." He says they are the effect of speculations arising from previous high or low prices. Now there can be no doubt that improved or neglected tillage would in a few years materially alter the quantity of the productions of the earth, and that high or low prices would influence the cultivation is equally certain; but to deny that good or bad seasons alter these productions in a still more sudden manner, is to deny that which is as clear as noon-day sun. Thirdly, Mr. Wilson asserts that the repeal of the corn-laws would not reduce the price of wheat, but the contrary; the way in which he says this, has all the marks of sincerity. He says this opinion is totally different from what either the agriculturist or the manufacturer hold. True, and it is not very wonderful that people should expect when the market of supply is widely extended, and the demand not in the smallest degree increased, that a fall of prices should follow; what may be the effect produced by a continuation of low prices is another question; but Mr. Wilson anticipates no decline of prices. My opinion, however, is, and always has been, unless the seasons prove very ungenial, or the British farm-

ers have a full anticipation of the change, and reduce their cultivation immediately, that a great reduction of prices will be the consequence of the repeal, and I think the natural effect of this reduction (which Mr. W. seems so well to understand,) being that British husbandry will be so much reduced as to occasion in unfavourable seasons, and when our continental friends either cannot or will not minister to our wants, such an advance in the price as has not been known here for many ages past. To preserve a steadiness of prices in corn has always been my most anxious desire, and I know of nothing so likely to effect this great blessing as the preservation of sliding duties, and the maintenance of that law, unaltered, and in all its integrity which has hitherto produced this happy effect. Had this gentleman been more happy in proving his propositions, I should gladly have given him credit for being more able to discuss the merits or demerits of the present corn-laws; but though he has as I think failed in proving any one of them, let us not deny him praise for what he has done aright. Many passages in his book proclaim a wise head and a kind heart. I will give two short extracts of that description, he says "wherever provisions are dearer, the condition of the bulk of the labourers is decidedly best, and their ability to command the necessaries, comforts, and even elegancies of life, form a striking contrast with the extreme difficulty with which even the barest necessaries are obtained, where they are cheapest;" he says, "compare the condition of the whole labourers of this country with that of any of the countries on the continent where provisions are at the lowest prices, compare their diet, clothing, and habitation, with what are allotted to the labouring classes in Prussia, Poland, or France, and see how superior the worst classes are in these respects in this country compared with the very best in those of supposed abundance and cheapness." The publication of such truths as these, is deserving the highest praise, especially when produced for the benefit of the anti-corn-law people. Mr. Wilson's fourth and last proposition is, "What change in the present corn-laws would best suit the interests of all parties?" To this I do not think it necessary to reply, because I think they require no alteration, and because to concede any thing material would be to destroy. I think the time has now arrived when I may properly retire from the controversy on the long agitated question of the "corn-laws." I entered upon its discussion for the purpose, solely, of explaining to my countrymen, in the best way I was able, the nature and operation of these laws, and if possible to convince them that, whilst affording a fair, and but a fair protection to the British farmer, they did not injuriously affect the commercial and manufacturing interests of the country. I have also been anxious that a question involving such vast and complicated interests should be discussed with temper and sobriety of language, and the progress of the argument in favour of these laws have convinced me that the good sense of my countrymen is not to be abused with impunity, but that time and reflection only are necessary to ensure from them a fair and candid judgment, and I trust that henceforth nothing will occur to disturb that friendly feeling which it is essential should exist between the agricultural and commercial communities. In looking back upon what I have written on this subject, I feel that I may congratulate myself in having abstained from all asperity of expression, nor have I, to my knowledge, violated, in a single instance, that respect which was due to those who differed from me in opinion. I have been deeply impressed with a

desire to disabuse the public mind of what I considered very erroneous opinions, and unfounded prejudices, and for this purpose I offered the benefit of my long experience upon subjects connected with the corn-laws, and I hope I have not wholly failed in my object. I beg leave, Sir, to thank you for the readiness with which you have published my letters in your paper, and to offer the same acknowledgment to every other Editor who has condescended to give them insertion. Should any thing arise to require it, I shall be at my post, but I feel persuaded the advantages of the present corn-laws are now more known and better appreciated than at any former period, and I most sincerely hope the agitation of the question will cease.

I am, Sir, your most obedient servant,
Nassau Cottage, Leeds, June 9th. JOHN BAKER.

DISEASE AMONG PIGS.

Sir,—Knowing the readiness with which you are willing at all times to throw open the columns of your widely circulated journal, by giving publicity to anything which might seem beneficial to the community, I shall crave your indulgence whilst offering a few theoretical remarks on a disease at present very prevalent, and in almost every instance fatal among pigs, in the North of Ireland. I say *theoretical*, because my limited experience would not warrant me in saying, that the treatment which I have hitherto adopted, and the medicine which I have hitherto administered, would invariably act as a specific; however the favourable result in the few cases which came under my observations has made a very strong impression on my mind, and if the observations which I am now about to make be the means of rousing the attention of intelligent farmers, or any other class of individuals, to the subject, my object shall be obtained. The first symptom of disease is manifested by the animal all at once refusing to take its usual food; and when kept in an enclosed yard, which is often the case, if a handful or two of soft grass or clover be thrown it, it will eat voraciously.—By and bye, it will refuse this also, and swallow nothing except some fluid, which more or less it will do, till within a short period of its death. During the progress of the complaint, the skin becomes exanthematous, at first appearance like flea-bites about the ears and neck, gradually spreading over the whole body; in a short time the eruption takes the appearance of measles in the human subject, and finally the whole skin is one universal patch of floridity. In some cases, a froth is observed working from the sides of the mouth, the belly shrinks, and the back becomes arched. On examining the stomach and bowels after death, the inner coat will be found nearly as red as the skin; which in a physiological point of view is not to be wondered at, when the peculiar sympathy existing between the skin and intestines of different animals is kept in consideration. The stomach is invariably found in an overloaded state with whatever the animal had last swallowed, and that in an undigested state; the remainder of the alimentary tube will also be found in the same loaded state. Now, from all the symptoms taken conjointly, and from the appearances which present themselves on a minute examination, after death, my firm conviction is, that the commencement of the disorder may, with great propriety, be denominated *inflammation*; which, if not arrested at the very commencement, will take,

with great rapidity, its most unfavourable course, and ultimately end in gangrene. The great obstacle, then, in the treatment of inflammation in pigs is the difficulty, I may say impossibility, of taking away a sufficient quantity of blood, in order to arrest the complaint. I am aware of the common and barbarous practice of cutting off the tail, but to use a common phrase, this is only “shooting at the moon.” As blood-letting, then, is out of the question, there should not be one moment lost, when the symptoms of the disease have shown themselves, in applying whatever medicines are most likely to control inflammations in general; and of these there is none more powerful than *Tartar Emetic*. When the symptoms of the complaint begin to show themselves, I would strongly recommend the propriety, nay, the necessity, of procuring *instantly* twelve grains of tartar emetic, dissolving it in a quart of cold water, and, of this solution, let one-half be administered immediately. This quantity I would give to a grown-up pig, and, of course, vary according to circumstances and sizes. If this quantity do not sufficiently vomit the animal, in the course of half-an-hour, I would give naggin doses, of the remainder of the solution, every twenty minutes, till the stomach be completely cleared. After you have had the stomach sufficiently cleared, the next object will be to unload the intestines, and the best means of doing this, is by giving scruple doses of calomel every hour, for three or four hours at the same time freely administering injections. By the above apparently simple treatment, and a perseverance in it, I have lately seen two cases, where, after the eruption had appeared, the disease seemed to be completely checked, and the animals got quite well. I would here remark, that for a long time back there has been an impression on my mind, that a great number of pigs are lost from a neglect of having their meat sufficiently seasoned with salt. I am inclined to think that the above hints, if attended to, would much excel in usefulness the few nostrums of those would be veterinary surgeons, cow-doctors, brute-quacks, or “skilled men,” whose obstinacy and self-conceit are generally only surpassed by their ignorance, and to attempt to reason with, or persuade whom, is often as much in vain as their traditional prescriptions. Hoping these observations may be the means of exciting farmers and others, who may be so unfortunate as to have pigs affected with the complaint, to a consideration of what has been suggested, and letting the result be made public, I remain yours, &c.

C. M.

A NEW AND EFFECTUAL METHOD TO KYANISE TIMBER.—Within the last two or three weeks the Manchester and Birmingham Railway Company have commenced Kyanising their wood sleepers in a much more quick and effectual manner than by the old mode of simply depositing the timber immersed in the prepared liquid. The company have had made a large iron cylindrical vessel, weighing about ten tons, and which is about thirty feet long, and six or seven feet diameter, made from wrought-iron plates, five-eighths thick, and double rivetted, which vessel is capable of resisting a pressure of 250lbs. on the inch. This vessel being filled as compactly as possible with wood sleepers, twelve inches broad and seven inches thick, the liquid is then forced in with one of Bramah's hydraulic pumps, and worked by six men to a pressure of 170lbs. on the inch. By this means the timber is completely saturated throughout in about ten hours, which operation, on the old system, took some months to effect.

ON THE USE OF GYPSUM.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I have for many years past sown gypsum as a top-dressing for lucerne, clover, sainfoin, and tares, and this year I have experienced the same beneficial effects as before, by an increased produce of from ten to twenty cwt. per acre. Last year I procured some gypsum for a friend of mine to sow on his sainfoin, and in order to give it a fair trial, one part of the field was left unsown; the part sown was a lodged crop, and the other a deficiency of from ten to twenty cwt. per acre: this year the sainfoin was not gypsum'd, but there is quite as much difference in the crop; and when broken up and cropped with corn it is very visible. If the Royal English Agricultural Society publish the prize essays on different subjects, I think that they will produce some valuable information. VERITAS.

GYPSUM.

SIR,—I should be much obliged if your correspondent "Veritas" would inform me, through the columns of your paper, what description of land his is, the quantity of gypsum he sows per acre, and the time of sowing it, because the result of his experiment is very different to mine in the second year. I applied it first last year on sainfoin, and the result was an increase of 20 cwt. per acre; part of the field was not sown with gypsum. This year that part not sown last year is much the best, and the part where it was sown, the plant is almost all gone. I should suppose from its being forced so much last year, the field was a gravelly soil; the gypsum sown the middle of May at 3 bushels per acre.

OCCATOR.

ON GYPSUM, &c. &c.

SIR,—I have often seen in your paper strong recommendations of gypsum as a top-dressing for clover, but I cannot find any one in this neighbourhood who knows how it is used, and I should be much obliged if your correspondent "Veritas" would inform me, through your paper, where it is to be obtained, how it is to be prepared for manure, and the quantity per acre for clover. It is, I believe, only to be obtained here in the shape of stone, and if it must be burnt before applied as manure, how is this effected?

While I am writing, I would suggest that some remarks on any vegetables or fruits, particularly good of their kind, as sold in Covent Garden Market, would be acceptable intelligence to some of your subscribers, who like myself live at a distance from London, and know not the new and good things that are introduced into the vegetable world.

What is the finest variety of Rhubarb cultivated, and where can I obtain some of a scarlet colour through and through? I saw Bradford's scarlet Goliah recommended the other day in St. James's Chronicle as the best sold in Covent Garden Market. Is this the case, and where may it be purchased?

I have now asked so many questions, that I cannot finish without answering one of your correspondents, who wished to know a remedy for what we in Cornwall call the "gapes" in chickens, which disorder may effectually be cured by putting the diseased creatures in a tub, covered over with a thick cloth, and then filling the tub with smoke from a tobacco-pipe, which may be easily done by a person smoking a pipe and puffing the smoke under the cloth from his mouth; if one smoking is not sufficient, they may be subjected to a second and a third; but if young chickens are kept from dirty water and filthy open drains they will, I believe, never get the disorder. Let only your Devonshire correspondent take a brood of young chickens into a field, confine the mother in a coop, and give them a good supply of meat and clean water, and she will soon perceive the cause of

her chickens "gaping;" their little throats get filled with small red worms of the shape of earth worms (generated probably by filth), and this causes them to be continually gaping, and many of these little worms may be extracted by twisting round the inside of the throat the feathered part of a goose-quill. The chickens should be smoked till they are stupified.

I am, Sir, yours &c. &c.,

Cornwall, June 19, 1840.

A. B. C.

ON THE FLY IN SHEEP.

SIR,—Could I beg the favour of some of your numerous, talented, and practical correspondents to give me their opinion upon a circumstance that has occurred in my flock? On the 12th inst. my shepherd found six sheep which had been struck by the fly, and a few maggots were upon each of them; it being the night previous to the commencing of clipping, he shorn the whole of them and applied a small quantity of tar to the parts affected; the skin was not perforated, and apparently the animals did not suffer from the attack, at all events their health did not appear to be affected; twenty-four hours after two of them died, from what I suppose to be the application of tar.

I find Blacklock, in his treatise on sheep, strongly reprobates its application, which he describes as being too cantering in its effects. While in a work on sheep, published by the Society for the Diffusion of Useful Knowledge, I find the author recommending spirits of tar to be applied; now these opinions I conceive to be completely at variance with each other, and I shall feel obliged by some of your scientific correspondents setting me right on that score. The questions, I would ask, are these:—

1st.—Did my sheep die because tar was applied? (they were examined post mortem) and not the least indication of any internal disease was perceptible.

2nd.—What is the difference between tar and spirits of tar?

3rd.—How do those substances act upon the animal system when applied in the manner my shepherd applied them?

My father always made use of the ingredient tar, mixed and unmixed with other substances, to parts affected, after the sheep were shorn, and most of my neighbours do the same, but I never heard of anything unfavourable being the consequence, so that to the present I have not been compelled to act contrary to my forefathers and those around me, but have thought well to adhere to an application supported by long usage sooner than search for a new one. However, I think now that something must be wrong, and shall take it as an especial favour if some of your numerous and well-informed correspondents will give me their opinion upon the subject. Yours &c.,

A NOTTINGHAMSHIRE FARMER.

P.S.—I find the corn law question has not yet subsided; my opinion, as an extensive farmer, is that high prices of corn will ruin more farmers than any other cause, and that both landlords and tenants are immense sufferers by the present corn laws. I am farming in the counties of Nottinghamshire and Derbyshire, and have not the least hesitation in saying that, so far as my knowledge of facts lead me, that three-fourths of the farmers are ruined by (what may seem strange to the great bulk of our agriculturists) the high value of grain. I cannot, within the space of a letter, fully explain myself, but of this I am certain, that if high prices continue, a many, very many, of the farmers will, ultimately, have to kick the workhouse door for admittance.

TO THE EDITOR.

Sir,—Your correspondent, "A Cornishman," complains of his inquiries respecting Cotswold sheep not being answered. I have been a breeder of Cotswold sheep on the Gloucestershire Cotswold-hills for about 20 years, and will conscientiously answer his inquiries without prejudice to either Cotswolds or Leicesters.

The improved Cotswold sheep are hardy, of good constitutions, good wool growers, good sucklers, and are fit for the butcher at an early age.

My regular flock is 500, I am a moderate keeper, my yearling sheep average about 10 stone each, the average weight of wool has been 115 tods per year, 28lb. to the tod, viz., from 250 ewes and 250 tegs, making together 500 fleeces. The weight of wool and mutton could be greatly increased by superior keep, though I doubt whether it would be more profitable. I am stating exactly what moderate keep has done, for your correspondent's information.

A few years ago I was induced to cross part of my ewes by a thorough-bred Leicester ram from a first-rate Leicester flock, the result was as follows:—The first summer the lambs were very pretty and pleasing to the eye—I found at winter they could not endure the inclemency of the weather; they appeared always starved when my own sort appeared quite comfortable. At shearing time they were very deficient in wool; I sold the males at the usual time I did my others (always kept together), they were very much less in weight, and what surprised me more was, the butchers declared they were of a worse quality than my original sort, having too much fat for the lean, which did not please their customers.

The females I put to the ram, but they proved bad sucklers, their offspring were pretty but not profitable to me, consequently I sold them all off, fully convinced the sooner I eradicated such delicate blood from my flock the better. I am certain the Cotswold sheep would not do well on warm land and small enclosures; they require room and air. I think every person who breeds for profit should carefully consult both soil and climate, and select stock best calculated for it, without prejudice. I am not acquainted with Cornwall, but if the soil and climate is similar to the Gloucestershire Cotswold-hills, I have no doubt our Cotswold sheep would suit much better than Leicesters; they can stand more cold than any other sort, yet, like all other breeds, the better they are kept and the more care that is taken of them, the better they will do.—I am, sir, your obedient servant,

A COTSWOLD BREEDER.

Gloucestershire, Cotswold-hills, June 18, 1840.

P.S.—The gentleman your correspondent alludes to in his neighbourhood who gave a description of Cotswold sheep must be a very young man, and quite ignorant of sheep, and good management also, otherwise he would not allow such dangerous dogs to remain on his farm untrained.

ON SOILING MILCH COWS.

Sir,—You would oblige a young Farmer, if you could procure from any of your numerous Correspondents, the result of any experiments they have themselves made on Soiling Milch Cows. The information would be valuable, in proportion to the extent to which it has been tried, and also if tried in an entirely rural district. Where land lets high near towns, there is a great demand for milk: I have no doubt of the benefit of the plan, but I wish to know if any one can recommend it, who has tried it upon a large scale, for cheese or butter. We read of wonders performed in Holland, and elsewhere; one acre summering four Cows. As I have never had an opportunity of proving the truth of this assertion, I should feel particularly obliged, by your procuring some information upon the subject.

I am, your obedient servant,

TYRO.

FINLAYSON'S HARROW, AND WILKINS' BRAKE.

Sir,—In answer to the Carmarthenshire Farmer who wishes to know where Finlayson's Harrow and Wilkins' Brake are to be had, and which of those implements is the best, Finlayson's Harrow is to be had of Mr. Marychurch, Haverfordwest, who makes many of the modern implements—iron ploughs and harrows, turnip drills, with or without the apparatus, for delivering manure with the seed.

In regard to Wilkins' Brake, never having seen it, I can give no opinion of its qualities, but I can recommend Finlayson's Harrow as a powerful and efficient implement, not only for clearing the ground of couch grass and other weeds, but also for the seed earth for Spring corn, which I did in the following manner: after being ploughed, harrowed, and rolled, sow the seed on the smooth surface, then Finlayson's Harrow, followed by a light seed harrow, which will not only cover the seed in a very perfect manner, but deposit it at a regular or equal depth. The price is nine guineas.—I am, Sir, your humble servant,

June 12, 1840.

ANSWER TO QUERY AS TO THE HEAVIEST RECORDED WEIGHT OF A FAT SHEEP.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir,—In reply to a question asked by a Correspondent in your paper of the 25th of May, I write to give you the best information in my power as to the live and dead weight of the heaviest sheep bred from the rams of my father-in-law, Mr. Richard Goord, of Milton, by the under-mentioned gentlemen. Mr. Goord's sheep have been bred in-and-in upwards of 40 years, and are called "New Kents."

Name of the Breeder.	Name of the Feeder.	Age when killed, in months.	Live weights, in pounds.	Weight of carcass without the head in pounds.	Years of Existence.
Thos. Dodd, Throwley, near Ospringe, Kent.	John Minter, Canterbury, on (Pasture) Grass only.	20	142½	142½	1834
Wm. Smart, Rainham, Sittingbourne, Kent.	Himself on Grass & Turnips.	20	260	173½	1831
Richard Goord, Milton, Sittingbourne, Kent.	Himself on Grass & Turnips.	32	298	199½	1832
Jno. Oakley, Frindsbury, Rochester, Kent.	Himself, any how fed.	20	277	190	1838

The above sheep were all exhibited at the Kent and Canterbury Cattle Show, where they obtained the first premiums in their respective classes. Mr. Oakley's wether was exhibited in Smithfield, and afterwards at Canterbury, and must have lost a few pounds in travelling. I have only further to add that Messrs. Dodd and Smart have bred strictly from Mr. Goord's rams 40 years, and that Mr. Oakley has done so 20 years, as the ewe from which his sheep was bred was purchased of Mr. Palmer, of Herne, near Canterbury, who has bred in-and-in from Mr. Goord 20 years. If your correspondent would wish any further information, I shall be pleased to render it if in my power.

I am, Sir, your obedient servant,

JAMES FULLAGEN.

Milton, Sittingbourne, June 11.

REMARKS ON MR. J. B. H. BENNETT'S "LETTERS AND OBSERVATIONS ON THE SUBJECT OF TITHE APPORTIONMENT;"

AND ALSO ON THE TITHE COMMISSIONERS' ANSWER TO THOSE "LETTERS AND OBSERVATIONS."

I have been land-valuer and agent near twenty years, and have annually valued the tithes of this parish, containing about 26,000 acres, for six years.

The subject of commutting and of apportioning tithes has often occupied my thoughts for ten years before the question was brought before parliament. The first 30 years of my life was wholly spent in the cultivation of land, at least after I was capable of handling an implement. I was not a gentleman farmer, but a working one, and it was while in this capacity, that I practically felt the injustice of the old system of tithing, and this, no doubt, set my mind to work upon the subject.

When the question came before the House of Commons my ideas upon both parts of the subject, and which are entirely distinct, (commutting and apportioning) were submitted to a Nobleman, who occupies a seat in the House, and one who is acknowledged, by every party, to be possessed of very considerable abilities, and one who never meddles with a subject he does not understand. He was pleased to say that my views upon this subject were correct ones, particularly upon that part which relates to apportioning the rent-charge. I do not say this with any ostentatious view, but to prove that I am a practical man, not a mere theorist. It is evident that Mr. Bennett is also a practical man, and upon almost every part of the subject we agree; but upon that part which relates to apportioning, or rather valuing contingencies, we differ. He even seems to have right views generally upon this, but appears to be afraid to grapple boldly with the subject. It is to this part of the subject, that my remarks chiefly apply, and I feel more anxious on it, as I find the commissioners are afraid he goes too far, while I think that the conclusion he arrives at falls short of the real meaning of the act.

Having thus cleared the way, I shall commence my work by asking, what were the objects in view, in passing the Tithe Commutation Act?

These, in my opinion were *fourfold*. 1st. The old system of tithing corn and hay, &c., was a direct tax upon industry and good cultivation. The act has, or intended to, put a stop to this. 2nd. To allay the ill feeling which existed between *tithe-owner* and *tithe-payer*, and which arose, in part, through the ignorance of the tithe-payers, and in part through the evil effects of the tax on industry and good cultivation. 3d. To prevent the total annihilation of the tithe-owner's property which was taking place in some parishes where that property chiefly consisted of corn tithe, and which arose in consequence of higher rents and profits being returned from grass land than from arable. I could name several parishes where this would have been the result if the old tithe-law had remained in force. 4th. To *equalize the burden* and to *settle the question for ever*.

It could never be the intention of the legislature, in passing the act, that any land which was *not tithe-free* should be *made so*, or nearly so, whatever way it might be cultivated or occupied. There are only

a *few words* in the *whole act* which can, by any means, have this construction put upon them, and those *few words* have different constructions put upon them by different tithe valuers. It was evidently the intention of the framers of the act, that all lands, *not tithe-free*, in every parish, or township, should be put upon an *equal footing*, according to the nature of the soil, whether occupied in grass or under arable crops. I will say that this is the only honest way of settling the question.

When the tithes of land was covered with a *fixed modus*, the law says, and very justly too, that that land is to have the *benefit* of that *modus* in apportioning the rent-charge. According to the ideas of the tithe commissioners all old grass land, although subject to corn tithe under the old tithe laws, will now, by the new act, be in the same situation as land covered with a small *modus*, and, in some cases, *tithe-free*. Now, if this had been the real intention of the framers of the act, there is little doubt but express clauses, for that purpose, similar to the clauses on *modus*, would have been inserted in the act. Such a vital principle would not have been left to the *vague construction* which might be put upon a few words.

With the general principles of the act, I have an high opinion; but in some cases it has done an injury to the tithe-owner, and in others, to the land-owner. These are evidently some omissions in the act. Suppose all the land in a township, subject only to corn tithe, has been in grass eight, or ten years previous to the passing of the act. How does the tithe-owner stand now? Why his property is gone for ever, for when there had been *no tithe for seven years*, there could be *no average*. On the other hand, when the whole of a township had been much over-ploughed for seven years ending 1835, the averages are raised above what we may call par, and the land-owners are saddled, for ever, with more than is justly due from them. I say these appear to be omissions in the act, and it is evident to me that the commissioners draw this inference from them, that each field, or each farm, or each land-owner's property, should be apportioned upon the principle which is intended, by the act, to be applied to a *whole township*. The influence which the commissioners and some tithe-valuers draw from these omissions, coupled with a wrong construction put upon a *few words* in the thirty-third clause, has done, and will do, considerable mischief in the country.

Now, inferences may be drawn from *actual clauses* in the act (not from omissions), that the commissioners and Mr. Bennett, have erroneous ideas respecting short charging old grass land *not covered*, with a *fixed modus*.

In the forty-second clause there is provision made for *change of cultivation* in *hop grounds* and *market gardens*. When old grounds are thrown out of cultivation, by this clause, the extraordinary charge shall cease to be charged, but when new grounds are appropriated to such purposes, an additional amount of rent-charge is to be put upon such land. Now, as I have before said, the framers of the act never could intend that grass land, subject to corn tithe only, should, by the act, be made *tithe-free*; and, as there is no clause providing for change of cultivation in such cases, the only fair inference is, that such grass-land should, in apportioning the rent-charge of a township, be put upon the same footing as the arable, taking the natural quality of the soil into consideration.

It is only *interest* or *caprice* in the land-owner,

or occupiers, which continues grass land *permanently* so. And ought these to have any weight in apportioning the rent-charge upon a township? If I think it more profitable to occupy land in grass, am I, on that account, to be exonerated from contributing my *fair share* to the church, or to the tithe-owner? Is my land to be made tithe-free, or nearly so, by the act? If it be, then I shall make bold to say, that the act was made upon *false principles*. Perhaps land may have been held in grass from a *vindictive feeling* in the owner, or occupier, arising from some *dispute* with the tithe-owner; from a *peevish, selfish, penurious* disposition, or from *narrow minded* sectarian views. Is a just and lawful burden to be removed off land *for ever* because the owner, or occupier, is a man of bad feelings? And is the *easy tempered* open hearted man, to be saddled *for ever* with a high rent charge, because his tenantry have over ploughed for seven years previous to the passing of the act? I admit that where the *whole* of a *township* or *parish* has been in grass, or over-ploughed, the rent-charge will be light or heavy accordingly. But in *these cases* it will be *equal*. It is in such cases that the act is faulty; and, it is evident, from the general tenour of it, that such cases were overlooked; for I firmly believe, from carefully examining the act over and over again, that those who framed it *intended* to do justice in every case.

It will be seen, that it is only in cases where one part of a parish, or township, has been *over-ploughed* and another part in *old grass, or in grass for seven years* previous to the passing of the act, that I, and the commissioners, and Mr. Bennett, differ in our opinions on the subject of apportionment.

To exhibit what I conceive the erroneous principles laid down by the tithe commissioners, and Mr. Bennett, I shall suppose several cases, and I will suppose none but what are *real ones*, of the same nature have come under my own observation.

I must first say, that nearly the whole of Mr. Bennett's arguments are in favour of my principle. They are sound, clear, well expressed, and to the point, but he is evidently *frightened* at applying them to the *extent* which he seems inclined to do. Before I proceed further, let me analyze the thirty-third clause of the act, at least all that part of it which is necessary to clear up the point in dispute. After stating that the tithe valuers are to adopt the principle of apportionment agreed upon by the landowners, the clause goes on to say, "or if no principles shall be then agreed upon for the guidance of the valuer or valuers, then, *having regard to the average titheable produce and productive quality of the lands.*" Here is a part of a sentence, or rather a parenthesis between two commas, which the commissioners, Mr. Bennett, and some tithe valuers, divide into *two distinct* parts, having *two distinct* meanings, nearly opposite in their effects upon an apportionment. The latter part of this *fraction* of a sentence is clear, and understood by all men. The former part is considered by some, to have nearly the same meaning as the latter; but if the commissioners are right in their view of it, the tithe valuers should be endowed with a sort of *second sight*, or rather he should be able to see how land is *for the future*, to be cultivated, at least for sixty or a hundred years. But then, to make this matter easy, so easy that any *old woman* might turn tithe valuer, the valuer is to jump at this conclusion; namely, that if the land has been in grass forty or fifty years it will remain in grass till the *resurrection*, consequently

have no titheable produce upon it, that is where it is only subject to corn tithe under the law; in other words it will be made *tithe free for ever*, although it was *not so* before the passing of the act. Mr. Bennett does not go so far as this, but then he touches upon the "vested right" of old grass with a very light finger. A little before, I have said I would suppose several cases to show more clearly the fallacy of ever going to the length of Mr. Bennett's "contingent" principles. But I find he has done this for me at page 6th of his "Letter and observations," in paragraphs 3d, 4th, and 5th. Here is a sort of dialogue between an *over-tillage* Clod-hopper, an *old Turf Landowner*, and a *Titheowner*. (By the by, the owners have nothing to do with apportioning the tithes.) The over tillage landowner argues *very fair and honestly*, and at last agrees for three shillings per acre, although he has been paying five shillings per acre. This is all very well, but does Mr. Bennett do the same at page 7th, in his example of apportionment there? No! But let us see how the gentleman of the "Old Turf" comes on in paragraph 4th, in page 6th. He stands up manfully for the "vested right" of his beautiful old turf. At last he agrees for *threepence per acre*, or seven shillings and sixpence for a *total exemption*, and *laughs* in his sleeve at overreaching the titheowner, as he has "*no doubt*" in his own mind, but when all contingencies are considered, his tithe is worth sixteen-pence per acre, or two pounds for being *tithe free*, which is the same thing. Men of the turf are proverbial for being sharp, and it seems old turf men are half-brothers. Now by Mr. Bennett's mode of argument here, he *acknowledges the contingent tithes*, in the case of this old turf, to be *worth sixteenpence per acre*, and yet only charges *threepence per acre*. Here he charges thirteen-pence per acre *less than he considers the tithe to be worth*, while with the arable gentleman he charges sixpence at least, but perhaps four shillings per acre *more than he considers the fair value*. This is what I call *one-sided work*, and yet it is evident that the Tithe Commissioners would have been more favourable to the old grassy gentleman. I will here state a fact.

One or two landowners in a certain township, had allowed their tenants to over plough. Another has not allowed any part of his property to be ploughed for a considerable number of years, and the land was only subject to corn, potatoe, and turnip tithes. This man claimed Mr. Bennett's contingent principle to be adopted in apportioning the rent-charge agreed upon for the township. Others backed him, because it was more favourable to them, not having much under the plough for the last ten or fifteen years. After giving my argument, for my principle, I was allowed to apportion it my own way, and when done is quite satisfactory to all parties. They feel that the burden is *equal*, although some pay *more*, and others *less* than they did before. I apportioned it on the different fields according to the *natural quality* of the land, and only applied the contingent principle to the woodland; but here I did not carry it out to the length the Commissioners, or Mr. Bennett, would have done. A case has come under my observation, of a landowner not allowing his tenants to plough, but who is lately dead. His successor will no doubt be more liberal in this respect. Now if the rent charged of the township where this property is situated, had been apportioned last year upon the Tithe Commissioners' principles, it would have been made *tithe free*; or, at the most, nearly so for ever. What has one year done? Why, over-

turned the necessity of applying the contingent principle. One short year may do this in any case. No man can live for ever. We well know that what one generation does, perhaps the next undoes. To say how land may be occupied for the next fifty years, is to talk nonsense. Agriculture has been revolutionized in my own native township twice in my time, (fifty years.) When I was a boy about one-tenth of the land was under the plough. When I was twenty-five years of age more than one-third; now about one-eighth. Look at this, and see the folly of saying that any land now in grass, will remain so for fifty years to come. Then again to talk of the beauty of old turf. No one admires it more than I do; but in apportioning tithe, we must not be led away by beauty, if we are sometimes in choosing our wives. We must do our duty, or do justice, to the toiling arable cultivator as well as to the jolly grazier.

I will now offer a few observations on Mr. Bennett's example of apportionment at page 7th, in his "Letters and observations." I consider it to be a most unfair one. All the land in grass has a *shifting* modus upon it. That is, if I understand it right, while in grass, a trifle per acre is paid, but when in corn is subject to common tithe. This shifting modus has nothing to do in the principle of apportionment; it merely forms a part of the average, or sum agreed upon between the landowners and the titheowners, in lieu of the whole township or parish. In this example of Mr. Bennett the rent-charge should have been charged upon all the lands equal, according to natural quality of the soil. The opinion of John Meadows White, Esq. in a note on the 33d clause, is in my favour respecting a shifting modus.

This clause says, "that lands shall have the full benefit of every modus and composition real, prescriptive, and customary payment, and of every exemption from, or non-liability to tithes relating to the said lands respectively, and having regard to the several tithes to which the said lands are severally liable." The meaning evidently here is, that all land when the tithes are covered with a *fixed* modus, or composition real, that modus, or fixed sum, must be charged upon *that land*, and will form the subject of a distinct apportionment from the rest of the township or parish. It is not so with a *shifting* modus; the valuer is told in this case to have "regard to the several tithes to which the said lands are liable;" of course, if liable to corn tithe, must be charged as all other lands liable to the same.

In the case of Mr. Bennett's example at page 7th, we will suppose the property of L, which is all upland turf, had been in the market ten years ago, before the Tithe Act had been thought of. And suppose Mr. Bennett had been employed by some intended purchaser to value it for him; and suppose Mr. Bennett had got the crotchet in his head that the land would never be put under the plough, and of course never subject to corn tithe. Well, he brings in his valuation with 300*l.* added to it, upon strength of this contingency. The intending purchaser would set him down for a blockhead and would have said, "I will have no such contingency considered: the land is subject to corn tithe, and I shall be ruled in the price I give accordingly."

Auctioneers, at the sales of property, always point every advantage about it in the most brilliant colours, but I will venture to say that no one of these long-tongued gentlemen, at the sale of the supposed property of L. would in stating its advantages,

have once alluded to its being tithe free, in consequence of its being old turf. If he had done so the whole company in the room would have laughed at him.

About fifteen years ago, a gentleman in my neighbourhood bought a township in a grazing district in Yorkshire, the whole of which was in old grass. One part of the estate was *tithe free*, the other part was subject to *corn tithe*, of course tithe free while in grass. I know he gave a greater number of years purchase for the tithe free land.

In the case of Mr. Bennett's example at page 7, the property of A. and that of L. would have sold ten years ago for the same sums, if the land in each property had been equal in quality, and situated in other respects the same. But if the meaning of the tithe act is as explained in this example of apportionment, and as understood by the commissioners, the property of A. is now by that act *depreciated* 300*l.*, and that of L. *increased* in value 300*l.* Did the framers of the act contemplate this? If they did, I will say they were not honest men.

But look at Mr. Bennett's mode of valuing contingencies and say whether he even values them in a fair straight-forward manner or not. On the property of A. of 120 acres, there is 100 acres under the plough (an extreme case); the corn tithe of this 100 acres he values at 20*l.* per annum; 40*l.* would be nearer the mark, but this is of no consequence for my argument, only it would have shown the *enormousness* of his principle in a more *glaring light*. On the contingency (he might have said the certainty) of a *less quantity* being ploughed, he takes 6*l.* off this 20*l.*; for in column 10th he says the *proper value* of the tithe is 14*l.*, because, he says, in the same page, that the "*probability* is, that in a few years the tithe may not be worth 10*l.* or one-half their present value; and 4*l.* less than what he calls their proper value. Now this is just as extreme a case, and more so, than that of L. where all is upland old turf. There is little doubt but Mr. Bennett is quite correct in his "probability" of the tithes of A.'s property being reduced to *one-half* their present value, whatever that might be, in a few years. Then I ask why not give him the full benefit of this *certain* "contingency" when he gives L. the full benefit of a *doubtful* one. But the unfairness of his principle does not end here, for mark—when he has gone over the parish, upon his "contingent" principle, there is a *deficiency* of 18*l.* in making up the total rent-charge for the parish. Well, he has to begin to apportion again, and how has he done this? Why to make a crooked thing straight, he makes it still more crooked. He charges A. 2*l.* 15*s.* more than the *proper value* of his tithes according to his own principle, but L. he *only* charges 4*s.* more than what he *calls* the *proper value*, but a great deal *below* what I should call the *proper value*. Therefore when the work is finished he has charged A. 16*l.* 15*s.*, or 6*l.* 15*s.* more than what the tithe really would be worth in a few years under the old law, according to his own opinion. L. he charges 1*l.* 4*s.* instead of 9*l.* 2*s.* 6*d.*, which I consider should be apportioned upon him. As I have before said he gives L. the full benefit of a *doubtful* contingency, and A. less than half the full benefit of a *certain* one.

Suppose I go over the parish along with Mr. Bennett, while making out the apportionment; as I wish to hear what he has to say as he proceeds, I will hold my tongue, as he is to apportion the tithe and not me.

Well, we go upon the property of A. first, and

in walking over it Mr. Bennett says, "Mr. A. is a hard working fellow, but certainly not a very wise one, as he is ruining his land by over ploughing, having 60 acres out of 120 *more* under the plough than he ought to have. His corn tithe is, and has been, for some years back, worth 20*l.* a year; and no doubt the tithe commissioners would charge this sum to him and his heirs for ever. I will not be quite so bad as this; my contingency principle must be put in force here. Well, when I have properly considered all these, I feel convinced, that even if he continues his present system of farming, his land will, in a few years, only produce *half the value* of crops it has donately; but he will soon see that it will be to his interest to lay a greater portion of it down to grass; I shall therefore say at once that 10*l.* a year will be a fair value for a lease which is to last till the resurrection. But what will the commissioners say, and the old turf gentlemen, if I only charge this sum; besides, Mr. A. deserves a little punishment for not having more regard to the beauties of old turf, and which produces the favourite dish of old John Bull. Well, I will charge him 14*l.* a year upon his long lease, which is *only 4*l.* more* than he ought to pay." Thus we go on till we come to the property of Mr. G., charging every one *more* upon the contingency principle than each ought to pay. Mr. G. gets a *proper sum* apportioned upon his property, as he ploughs a proper proportion. But we will proceed at once to Mr. L.'s estate. "Beautiful grass this," says Mr. Bennett. "Oh! I like to see old grass land, it puts me in mind of *Arcadia*, and it certainly smells of *roast beef*, this gentleman certainly deserves to go to heaven as cheap as possible. The commissioners, I believe, would not charge him a farthing, their veneration for old grass is so great; besides they go upon the principle that *all land* which is in old grass at *this time*, will *remain* so till the last trumpet sounds. I do not think so, but after all I do not exactly know how to act here, I cannot tell what to think about the *probability* of this beautiful grass land being ploughed up. The owner, or occupier, may die any day, and their successors may change their mode of farming either from the high price of corn or some other circumstance. Even the passing of the tithe act itself may be the cause of a change of farming, as the tithe now will *not increase* the expences of raising corn or other arable crops. He must be charged 2*d.* per acre, and I will charge his neighbour Mr. M. 1*d.* per acre. A. is charged 2*s.* 9*d.* per acre, which appears *more in the extreme*, and he is certainly placed in a *much worse situation* than either L. or M., but then he cannot see his own interest so well as these old grass gentlemen, and will be sooner reconciled to his *overcharge* than they, or the tithe commissioners to my *short charge* on the old grass. Well, I have now finished this apportionment; but how is this? I want 110*l.* off the parish, and I have only got 92*l.*, which leaves a deficiency of 18*l.*; I must have made some miscalculation, I must now begin to apportion again; and, as this is the case, I am determined to do it *honestly* this time; 18*l.* is 4*s.* in the pound on the rent-charge already apportioned; 4*s.* in the pound upon all *must be quite fair*, but yet this makes an additional charge to A. of 2*l.* 15*s.* and only 4*s.* to L. and 2*s.* to M. This does not *look right*, but it *is so* and must be so."

Mr. Bennett has now finished his apportionment, and although I considered him to come to wrong calculations, I kept my mouth shut, but

now when I am by *myself*, I can have all my *own way*, and shall therefore begin to find fault.

To be serious, if any one will read the bottom paragraph of page 7, of his "Letters and observations" they will see that *his arguments* are in favour of a more equal charge. He says A.'s charge is an *extreme one*, and that he is placed in a *worse situation* than either L. or M. "That the adjustment is *more severe* on A.'s estate than on the others, and he will eventually be the *suffering party*."

One of the principal faults of this apportionment is the apportioning the rent-charge upon each property as a *separate parish*, which is not intended by the act, except in such cases as the act provides, such as fixed moduses, &c.

At page 8, there are four examples to illustrate his opinion on apportionments. In these there is a modus of 3*d.* per acre on pasture land, but it is evidently a *shifting one*. Tithe is due from the *same land* if in corn or hay. Now this modus will only affect the *commutation*, not the *apportionment*. There are no particular fields on which the tithes are covered with a "modus, composition real, prescriptive and customary payment." The *whole* of the land is liable to *hay and corn tithe*. In these cases it is evidently the meaning of the act that the *whole land* in the parish, should be equally charged according to the natural quality of the soil; this, Mr. Bennett seems never to consider at all.

Just see the folly of his mode of proceeding. Turf more than 40 years old is called old turf, and is charged 2*d.* per acre, if *upland*, but if on a river bank 1*d.* per acre; 30 years old turf is charged 3*d.*; 20 years old 4*d.*; 10 years old 6*d.*; and 7 years old 12*d.* per acre. These charges are to be made whether the land be worth 5*s.* per acre or 50*s.* Not a word about quality. If I understand Mr. Bennett's contingent principles the valuer is to consider how the land *will in future*, be occupied, not how it *has been* in by-gone times. But it seems to be a principle laid down both by him and the commissioners that the *longer land has lain* in grass the longer it *will lie*.

But look at the difficulty of getting at the truth respecting the age of grass land; there will have to be a *jury summoned*, (no, the valuer is to be judge and jury whatever crotchet he may have got in his head) and *witnesses examined upon every field in grass*. Every landowner will endeavour to make his grass as old as possible. There will be no doubt apportionments to make 10 years after the passing of the act. Of course any sharp-sighted clodhopper, who has viewed things in the same light as Mr. Bennett, may have 10 years old grass, when the tithe comes to be apportioned, which was then in corn. "Oh!" says Mr. Bennett, "but I shall only look back from the passing of the act." Ha! my good fellow, but you also say you are to *look forward*; and in considering contingencies you *must look forward*, you have no other way to look. This clodhopper will perhaps swear that his grass is 20 years old, and that it *shall remain* in grass 100 years *after he is dead*, But just look here my good fellow, in apportioning the rent-charge upon grass land 10 years *after the passing of the act* you will want witnesses to prove that it is 50 years old before it can be called *old turf*, and charged 2*d.* or 1*d.* per acre, and 40 years old for 2*d.* per acre. A certain landowner, at no great distance from this parish, when the tithe act was in progress, gave order to his tenants to plough as little as possible,

and in the year following he had 200 acres less under the plough, upon his property, in one township. He could not tell how the tithe act would work then, but he knew that to have less land under the plough could not, by any possibility, be against, and might be in his favour.

It might be quite safe to adopt either the principles laid down by the Commissioners, or Mr. Bennett, if the apportionments were to last only 7, 14, or 21 years; but this is not the case. When once confirmed, they are to stand for ever.

At page 13, in the heading of some extracts and remarks, Mr. Bennett says that doubts have arisen whether tillage farmers are sufficiently relieved by his principle of apportionment. I do not wonder at this. I am also equally surprised that he should still adopt them after writing *any one of the paragraphs in that page. I will just take one.* "In the third place, regard is to be had to the *several tithes* to which the lands are respectively liable. These are the *express words* of the Act of Parliament. Nothing is said in this place about the tithes which the lands have produced within the *seven years prior to Christmas, 1825, or within the last seven years, or within 70 years*, but regard is to be had to the *several tithes* to which the land is liable, *whether they have produced tithes or not.* Not only one particular tithe, but every tithe to which the land is liable under *any circumstances*, is to be taken into account." This, as well as the others in the same page, breathe the true spirit of the act, but is quite at variance with his practice in his contingent tithe apportionment. His remarks at page 14 are equally in favour, with a few exceptions, of my opinions. In his concluding observations, at page 16, he nearly undoes all he has done in the several preceding pages. He appears to be like Earl Grey with the reform bill, frightened at what he has done.

I shall now make a few remarks on his principle of apportioning the rent-charge upon land of unequal value.

At page 16, in paragraph 4th from the top, he says, in speaking of inferior land, "it follows of course that the value of tithes is higher in proportion on bad land than on good. In many cases, where *poor land* is necessarily managed at a *great expense*, the tithe will amount to a sum not less than *one-third*, or even *one-half* (he might have said *the whole*) of the *landlord's rent*, and this is no uncommon thing in districts of weak corn land." He is perfectly right here, and this was one of the *gross injustices* of the old abominable system of tithing. One of the objects in passing the new act was to *put a stop* to the injustice of taking the tithe in full, from *highly cultivated land* of any description, but particularly from *highly cultivated bad land*. But does Mr. Bennett remedy the evil? No; or but very partially. He leaves a great portion of the sting behind. The old system of tithing has prevented thousands of acres of inferior land from being cultivated at all.

In his examples at page 16, he charges land with only 6s. per acre rent, at one-third, or 2s. per acre. That worth 36s., per acre is only charged one-sixth, or 6s. per acre. Now, if his meaning be that the 6s. land is only worth this from *extreme bad management* in the cultivation, and the 36s. land made of that value from *extreme good management*, then he may be right in his apportionment of the rent-charge. But if these are the *proper values* according to the *real nature of the soil* or its *capabilities*, then, I say, he is wrong in his

charging. Supposing this to be the case, I will take one acre of each value, as put down in page 16, and compare his principles with mine.

Mr. Bennett's principle.				Rothwell's principle.	
1 acre worth	6s. rent,	Tithe rent charge	s. d.		s. d.
		1-3rd or	2 0	On ditto	1 3
1 ditto ditto	12s. ditto....	ditto 1-4th	3 0	ditto	2 6
1 ditto ditto	25s. ditto....	ditto 1-5th	5 0	ditto	5 0
1 ditto ditto	36s. ditto....	ditto 1-6th	6 0	ditto	7 3
			16 0		16 0

It will be seen that, in this case, my principle is charging 4s. in the pound on the *value*, and supposing the value to be the *true value* according to the *nature* of the soil. The above are heavy charges for tithe according to the value of the land, but this makes no difference in my argument.

If, when in valuing land, for apportioning the tithe rent-charge, I come to two fields the soil of which is *exactly of the same natural quality*, I charge them the same for tithe, although one field may, from superior management and a great outlay of capital, be worth 40s. of rent, and the other only worth 10s. from *extreme bad management*. I do not spare a *lazy sloven* at the *expense* of the *industrious man*, who expends his capital freely. If I come to two fields which are both in an uncultivated state, and both worth *one price* per acre for rent in their *present state*, but, from the *nature* of the soil, or *subsoil*, one field is capable of being brought into a productive state with *less capital* than the other, I should put a greater amount of tithe rent-charge upon it. This is what I call considering its capabilities.

When the principle of apportionment is left to me I value all the land in the township, or parish, upon the above principle, and charge it accordingly; that is, when *all the land is subject to the same tithes*. I never make any difference on account of its being old turf, new turf, or arable land. "Equal burdens break no backs," and of course are easy to carry, and I have found that *every apportionment* I have made has been *satisfactory to every landowner*. My plan of valuing land for tithe requires more practical knowledge in agriculture than Mr. Bennett's plan. But when a township or parish is all valued, the dividing of the rent-charge is more simple. It is only seeing how much the *whole rent-charge* will be in the pound on the whole amount of the valuation, and dividing it upon each field at the same rate. There is neither a *deficiency* nor an *overplus*. If all the tithes of a part of the land be covered by a *fixed modus*, that forms a *distinct apportionment* from the rent of the township or parish. The modus is apportioned upon that part, and is then called the *rent-charge*, and is then subject to *variation*, by the average price of corn, like the rent-charge upon the other part of the township or parish.

Some valuers do not charge wood-lands with tithe, and others a mere nominal sum. I consider this not right. This is the only description of land which, in my opinion, contingencies ought to be considered, except land much subject to floods on the banks of rivers. If wood-land was very rough and uneven and almost unfit or impossible to convert it either into *tillage*, *meadow*, or *pasture*, if the timber was removed, I should charge it with little or no tithe. But if this was not the case I should charge it one-third, one-half, or two-thirds the amount of other land of the

same quality. Any man who has lived 50 years may have remarked a great quantity of wood-land converted into tillage, or grass, within that time. If land is *not tithe free* before the passing of the act it does not make it so, merely because timber is growing upon it.

I can name several townships where plantations have been made to a considerable extent since the tithe act was passed; and in some of these instances no tithe has been charged, and in others only 1½d. per acre charged, where the average of the township is 2s. 3d. In one instance, part of the land was under arable cultivation at that time. If the commissioners and some valuers are right in their principles, in such cases any landowner by merely planting his land with forest trees *before the tithe be apportioned*, may free his land from tithe for ever. And this may be done for less than 20s. per acre with seedling forest trees.

There is another bad feature in this light charging, or not charging, old turf and wood-land. The greatest, and of course, the wealthiest landowners receive most of the benefit; of course, the burden is thus thrown upon the *smaller and poorer*. These seldom cultivate their land with an eye to beauty, or for a future generation, for this very plain reason, they cannot afford it. They endeavour to make the most of the land in *their time*, consequently they seldom have much wood-land and as seldom any *old turf*. Thus, all the woodlands, demesnes, parks, gardens, and pleasure-grounds of the rich, some of which is not occupied in any useful purpose in a national point of view, are exonerated from contributing their due share to the church; while, at the same time, the *wealthy owners* have all the church patronage, and have nearly the *whole management* of all the money expended upon it. Should any one but just name church reform, they will immediately call out that "the church is in danger" and rise up in defence of what they call their "vested rights"; when, at the same time, they pay less than their *due share* to its support. In a township where I have lately apportioned the tithe rent-charge, there is a considerable quantity of *old turf*, some of it *upland*, and some very excellent, on the banks of a river. Another portion of the township belonging to three landowners, has been rather hard ploughed. When the tithe came to be apportioned, the landowners could not agree upon the principle, and had meeting after meeting for this purpose. The old turf men defended the "vested rights" of old turf manfully with a mere handful of troops; that is, with a very few words in the 33rd clause of the act, namely, "having regard to the average tithable produce." The remaining part of the sentence would not do, but which were brought forward by the other party, and held up to them like the "shield of brawn to the Jew." Neither party would give way, when, at the last meeting, I, as valuer, was called in to give my opinion. I did so, with a few of the arguments I have given in this paper, after which there was only one who voted for the "vested rights" of old turf and wood-land. When I took my apportionment in, even he expressed his satisfaction with it, and the principle it had been made on.

One part of this township will show the absurdity of saying that because land is *old turf* it will remain so for even 50 years. This part, and which is part of the *river land*, was, about 30 year ago, *old turf, prime meadow, and pasture*; land of all others which few people would have expected to be put under the plough. About 20 or 25 years ago, the

occupiers were changed, and, I believe, the ownership. Since then it has been under a regular course of cropping, and has had a good farmer upon one part of it, who, I have little doubt, but has paid 10s. per acre for tithe, or at least it has been worth that per annum, taking the whole farm together. Now if the tithe of this township had been apportioned 30 years ago, upon the principle laid down by the tithe commissioners, this land would have been made tithe free. If my friend, Mr. Bennett, had apportioned the tithe he would have charged it 1d. or 2d. per acre. Mine will average about 3s. 1d. per acre. If he, or the commissioners, had apportioned it at *this time*, from 7s. to 10s. would, most likely, have been charged. I ask, would an apportionment upon either principle have been an honest one? If it had been made, at either period, for only seven years, then in one case the "vested right" of old turf might have been held sacred, and in the other case, an extra charge might have been made. But this is not the case, when once apportioned it is to stand.

Wherever there is a burden hanging over land, although it be prospective, and to all appearance at a considerable distance, that burden will affect the price of that land when in the market. It is ridiculous to suppose that 1s. 3d., 2s. 6d., or 5s. per acre, would be the *fee simple value* of the contingent tithes upon old rich turf, subject to corn, potatoe, and turnip tithes, even if wool, lambs, calves, colts, pigs, and geese, raised upon that venerable old turf, were not subject to tithe. I will venture to say that any man would give 3 or 4l. per acre more for old turf to have it completely free of tithes or arable crops, except he had a prospect of an apportionment made by Mr. Bennett, or the commissioners.

It will be seen that my principle of apportioning tithe is this. That when the sum is agreed upon by the titheowners and landowners of a township or parish, I apportion it equally upon all the land in the township or parish, according to the nature of the soil; that is if *all the lands* are subject to the same tithes.

Every apportionment in this part of the country made upon my principle has given satisfaction (if the valuer understood his business and were honest) even to those landowners who had a great portion of old turf; while *every one, without a single exception*, which has been made upon other principles, have not given satisfaction, either to the owners or occupiers of land.

To the honour of the landowners in South Lancashire, at least to all those with whom I have come in contact, and with whom I have had any conversation upon the subject, have acknowledged that no other principle can be a fair one, and, from the construction of the act, is that intended by the legislature when it was passed.

I hope there is nothing in the above remarks which can be considered in any way disrespectful to the tithe commissioners, for it is my desire, in every case, to pay them due deference. I have always seen in them a desire to do right, and this has prompted me to give my opinions, although I am but a humble individual.

I am, sir, yours respectfully,
Winwick, June 15, 1840. W. ROTHWELL.

Diarrhoea is proving very fatal this season to young calves; but the following treatment has proved very successful:—As soon as the disease is ascertained, use gentle bleeding, and mild purgatives, such as 2oz. of prepared chalk, 1 dram of opium, 4 drams of catechu, and two drams of ginger, mixed and divided into three parts, given at ten hours' interval.

ON CULTIVATION.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—I should esteem it a favor if you would insert the following mode of the cultivation of land, in the hope that if there is any improvement to be made, some of your readers will be kind enough to comment upon it.

The land is of a mixed soil, and cultivated after the manner of the 5th course.

Fallow 1st.—Plough it twice before Christmas, then baulk the stretches and bring it on to the flat, then plough it on the great stretch across twice, draw it out on 8ths, stretch it up, muck it about 11 loads per acre on the stretch, and then plough (the muck in) it again on the stretch, with the necessary harrowing and rolling. Sow 3 pints of turnip-seed per acre on or about the 21st June, and hoe them twice.

Barley, 2nd.—Plough the turnip land on the stretch, clean baulk it across, and then on the stretch again, sow it of barley three bushels per acre, hoe it and keep it clean; sow one peck an acre of small seeds.

Clover, 3rd.—Weed it, and the average crop is 25 cwt. to 30.

Wheat, 4th.—Muck on to the clover ley for this, and get it in 2 bushels an acre, about November. Plough once, roll it in the spring, never feed it off, hoe it.

Barley, Oats, or Peas, 5th.—For oats, I plough but once, and put in 3 bushels an acre; peas the same; but for barley I case it about three times.

Dibbling I find the best mode of depositing seed, and as cheap as any, because the seed saved will defray the extra expense incurred by dibbling. I have tried nitre and find it act remarkably well on the soft corns, but cannot see so great an effect upon the wheat. I sowed about one cwt. an acre; I have also tried it upon turnips, and will report with what success I meet. I think if farmers were generally to plough their lands intended for fallow twice before Christmas, it would spare the expense of the hoe materially; and I am the more induced to say this because as Mr. Reed justly observed in your valuable Journal of January last, that "all soils contain more or less the principle of vegetation, and when any part of this power is employed in the production of weeds, there is just so much abstracted or taken from that which should be employed in raising corn."

By inserting the above you will oblige,

A YOUNG FARMER.

Great Chesterford, Essex, June 20th, 1840.

ANSWER TO QUERY.

[FROM A CORRESPONDENT.]

In the last week's *Mark Lane Express* a query appears, to ask how much butter weekly can be produced from one cow; if you choose to reply as follows, you may.

A labourer of mine has a cow kept by me as part of his yearly wages, which, after her third calf, produced 18lbs. of butter per week, which gradually decreased until within a fortnight of calving again, at which time she gave nearly 8lbs., and never was entirely dry for calving. She has had the epidemic, and is now recovered, and in full profit, but not equal to last year.

June 25.

G. B.

QUERIES ON THE FAILURE OF THE CLOVER PLANT.

SIR,—We, in this part of the country, have annually to lament the entire failure of red clover plants in our pastures of the second year: now the fact of red clover remaining permanent for a longer period, upon lighter and warmer soils, induces the hope, that by proper care and cultivation, a variety may be obtained, capable of retaining its hold upon the soil, during the whole period that we pasture our lands, which seldom exceeds two years.

With that view I take the liberty of proposing the following questions, in the hope that some of your readers practically acquainted with the growing of clover and other seeds, will favour me with answers to them through the medium of your inestimable Journal.

Is it not a fact that by judicious care and cultivation we have the power of modifying, to an almost indefinite extent, the character and nature of plants, not only as respects the luxuriance of their growth and the quality of their seeds, but also, in many cases, as regards the permanency of the hold which they retain of the soil? Thus if the seeds of perennial rye-grass be saved for a series of seasons, in the second year of its growth, will it not in consequence lose its perennial character? Now are not the seeds of red clover usually saved in the second year of the plant's growth? And supposing that it were a triennial, would not this have the effect of making it a triennial plant? Are the seeds of red clover ever saved in the third year of the plant's growth? And if so, have the lands saved in that manure, been tested against seeds saved in the usual way, with a view to ascertain the permanent character of each respectively? In "*Hortus Woburniensis*," I find perennial red clover strongly recommended for cultivation in alternate husbandry: is it so cultivated in any part of England?

Your insertion of the above questions will oblige a former correspondent.

J. R.

East Lothian, 17th June.

ON COW MANURE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In reply to the letter from a tenant farmer of Bangor, near Wrexham, North Wales, in your journal of the 18th inst., I should recommend him to mix horse manure in an equal proportion with his cow manure; by that means he will give a stimulating property to the cow manure which it does not possess in a great degree by itself, being naturally of a cooling nature; it would make his grass as abundant again, and prevent the cow manure crusting so much, as it would be parted by the horse manure, from turning it several times before laying it on the land; or try another method, mix lime along with the cow manure. Lime is invaluable as a top-dressing for meadows, it would kill the moss and decompose the manure, so as to make it serviceable for the nourishment of the grasses. As chalk is used on retentive clayey soils, to render them porous, and makethem work easier for the plough, I should think from analogy that adhesive stuff like cow manure, would be reduced by a sufficient quantity of lime being mixed along with it, so as to prevent it caking after being spread.

If your correspondent should benefit by these hints, I should be happy to hear of it through your journal.

I am, Sir, your obedient servant,

A YOUNG KENTISH FARMER.

ON THE USE OF COW MANURE.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Being a constant reader of your magazine, I observe at page 37 in your number for this month, a letter from a Tenant Farmer, on the use of cow manure as a top-dressing for grass land. Being an occupier of a few acres of grass land only, and a keeper of a few cows, I have for some years practised the following method with my cow dung. In the spring I cart it to the field and mix in alternate layers of cow dung, horse dung, coal ashes, (finely sifted) with as much night soil as I can conveniently get, in the proportion of two-thirds cow dung and one of horse dung, and also what pig manure I may have by me, or can get at a convenient distance and price, and in about two months, turn it over and well mix, and again do so a short time before it is spread on the land, which I do if there is a prospect of wet weather immediately after the hay is got off the land, if not I let it remain until the Autumn after the grass is all eat off, when it is well spread and dressed in; more especially in the summer, which I have found to answer well, having had more than two tons of good dry hay for two successive years per acre at each cutting. By this mode of treatment, if a few wood ashes were added to the above, it would be all the better. I have found that horse dung, and cow dung mixed, works more kindly and better than either separately. If you think that the above will be of any use to your Bangor correspondent, and it is worthy insertion in the magazine, you are at liberty so to do, if not commit it to the flames.

I am Sir, your obedient servant,

Wakefield, July 3.

G. STRAFFORD.

CORN LAWS.

The following very curious letter, which was written in 1610, by Lord De Roos, was communicated by the Duke of Rutland to the Walsham Agricultural Association, in October last, at a meeting over which his Grace presided;—

"Sir,—I doubt not but by this time you are very deep in the faculty of law-making. I desire much that if any laws be past, we may have the heads of them; the titles of the chiefest.

"I had some conference with Sir R. Buller concerning a bill, that no corn should be imported until it came to some extraordinary price. Of this having some consideration, there seem to me many reasons very strong for the converting of this bill into a statute.

"A first is, because the importation of corn is an exportation of money; and that, even in case of necessity, is a hurt to the commonwealth, though then tolerable for the avoiding of a greater hurt, but in unnecessary cases altogether inexcusable.

"Secondly, if importation be unlimitedly allowed, the cheapness of corn will take away the benefit of husbandry; and the benefit being taken away, husbandry itself (which is usually undertaken for benefit) will decay, and if husbandry decay, there are likely to grow two main inconveniences: the one, that the poor must starve for want of work, the effect whereof hath too much appeared in the conversion of tillage into sheep pasture; a second, that in short time this kingdom, to be set to a rent, will be less worth per annum many thousand pounds. For I think within this twenty years husbandry hath in many places doubled the yearly value of land, which, if tillage decay, is likely to return to the ancient meanness.

"And whereas there is a seeming objection that importation makes cheapness, and cheapness seems to favour the poor, I affirm that importation will especially

hurt the poor, and for their sakes especially it is to be forbidden; for if corn be cheap, and the poor man have no money, what avails it to him that corn is cheap when he cannot buy it? If money be carried out of the country, and the poor man be not set on work by reason of the decay of tillage, I wonder how he shall buy this cheap corn without money? I think it were better that corn were for 7s. a bushel, and yet by reason of tillage the poor man should earn 18l. or 2s. a week, than corn being at 5s. he should earn 12d., or perchance nothing. For, without question, half of the work at least will be abated. Besides, there are two inconveniences at this time which accompany cheapness, and make it unprofitable to the poorest sort of men. The one is the wickedness of bakers, of whom I hear it reported, that at this time they make their bread after 10s. the bushel; a second, of the town merchants, who buy ship-loads of corn, and sell it so much under the ordinary price as may serve to undo the husbandman, and yet so near the price that the poor hath far less benefit by it than the commonwealth, yea, themselves have harm.

"Thus I have expressed to you the considerations which have entered into my thoughts upon this business, which, if you think them worth the mentioning, I pray you to communicate to Sir Buller, which I do not to add to better judgments, but rather to submit them to their approbation. And I wish that this letter may be prevented by a statute before it comes to your hands.

"And so wishing you the direction of the Highest, and that the hand of the Almighty may be with you all unto the making of laws wholesome, and restorative for this poor and sinful land, I take leave, ever resting yours most assuredly to be commanded,

"F. ROUS (De Roos).

"To my loving and much esteemed cousin,
Richard Carey, Esq., of London."

ON ERADICATING CHICKWEED AND COLTSFOOT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—It would very much serve me, and doubtless many others, if, by inserting in your valuable paper this letter, you could procure some information on the best means of eradicating chickweed and coltsfoot; or, as it is here called, *spunk*, with which my land is very much infested: though I plough deeply, and weed the land before and after the crop is in the ground as well as I am able, it is not possible to stir the chickweed in a corn crop after it is above the ground without pulling up the crop with it; and it appears equally impracticable to pull up the coltsfoot, it sends its roots so very deep into the soil, and even into the subsoil. Your serving me in this will much oblige, Sir, your most obedient servant,

A SUBSCRIBER.

Dublin, May 28.

THE COLTSFOOT.

SIR,—One of your correspondents, a few weeks since, enquired the best method of extirpating Coltsfoot (*Tussilago Farfara*) from arable land. He gave it also the provincial name of *spunk*. The flowers should be gathered from the beds several times, as often as any can be found, to prevent fresh seeding the land: it flowers in February, March, and April, and before any leaves appear: this system must be persevered in through the whole course of cropping, and when the field is fallowed the same precaution is necessary, or the seed will be shed upon the land before ploughing, and thus secure a plentiful crop for the whole of the next course. The plant itself can hardly be got rid of without a summer fallow.

Framlingham, July 2.

GEORGE EDWARDS.

CHELMSFORD WOOL FAIR.

This fair took place on Tuesday, June 30, and the quantity of wool offered for sale, and the numerous attendance of the gentry and of the farmers, showed its growing importance to the agriculturists of the county. The quantity in the market was considerably larger than at any former fair. The following is the official statement, combining a comparison with last year:—

Fleeces shown in samples	16,452
Weighted	3,567
Number of Fleeces on show and weighed in 1839	20,019
1839	14,710

Increase for 1840 5,309
The gross weight of that weighed was 122 cwt. 3 qrs. 15 lbs.

The prices obtained were rather below the late quotations, but were upon the whole, perhaps, as good as the unfavourable circumstances of the trade warranted the growers in anticipating. The following is the average on the business of the day:—

Half-bred and down hoggets	15½
Ewes	12½
Wethers	13

On referring back we find that the following were the averages of the three previous fairs:—

1839	Hogget 18d. Ewe 16d.
1838	Hogget 20d. Ewe 16d.
1837 (a year of great depression in the trade)	Hogget 18d. Ewe 9d.

The dealers present were Messrs. Johns, Legg, Bell, Unwin, Elkington, &c.

THE DINNER.

At three o'clock, about 170 gentlemen sat down to an excellent dinner, served up by Mr. Lake, of the Saracen's Head Inn, in the county-room, at the shire-hall. J. Disney, Esq., the President of the Society, took the chair, supported by Lord Rayleigh and the High Sheriff. There were also present—J. Bullock, C. C. Parker, J. Guillemaude, J. O. Parker, T. Ellman, H. Wyatt, T. Brewitt, and J. Burness, Esqrs.; Capt. McHardy; Revds. T. Brooksby and W. Shepherd; Messrs. C. Matson, C. Legge, J. Brewitt, S. Baker, H. Boys, W. Hicks, D. Scratten, T. G. Ward, J. Brewster, T. Mayott, J. Page, E. Fulford, — Burder, T. Gale, W. Gale, W. F. Hobbs, J. Shepherd, W. May, B. Hobbs, G. Hart, — Hart, T. Addy, T. Durrant, — Seabrook, R. Baker, W. Crush, J. Smith, T. and W. Johns, — Elkington, J. Blyth, — Unwin, C. Hurrell, R. Seabrook, J. W. Downes, C. Hilton, T. Crooks, &c. &c.

After the cloth was removed, the usual toasts were drunk,

The PRESIDENT said they had 16,000 or 18,000 fleeces to sell, and he hoped some gentleman would make an offer. (*Calls for Mr. Parker.*)

Mr. C. C. PARKER said, having been called on he rose to make an offer. He did not know whether *Bell's Weekly Messenger* was any guide, but in it he that morning saw south-down hogget wool quoted at 1s. 6d., and ewe wool at 15d.; whether that told the truth he could not say, but as they ought to have something to guide them, he would offer his wool at that price. (*Cheers.*)

The PRESIDENT said, he had to offer for Mr. John Brewitt about 700 fleeces of Kent ewe and tegs at 15d. The offer was declined.

The PRESIDENT offered on behalf of Mr. Hutley 1,600 long-wool hoggets, at 17d., and 900 short-wool ewes, at 18d., to Mr. Legge and the rest of the buyers.

Mr. LEGGE said he was obliged to Mr. Hutley, but he was sorry he could not give that price.

The PRESIDENT said, he was desired by Mr. Malden to offer 350 Kent ewes and 200 Kent hoggets to Mr. Legge at 15½d.

Mr. SHEPHERD said, he was happy to state that he had sold his wool to Mr. Johns. As the agricultural interest was flourishing he thought they ought to give the trade a turn; and he had sold his teg wool at 15d., and his ewe at 12½d. (*Cheers.*)

The PRESIDENT said, Mr. T. Crooks had desired him to offer 400 superior half-bred Leicesters, and 250 down tegs, 250 down ewes, and 100 half-bred Leicester ewes, the hogget at 16d., and the ewe at 13d., to Mr. Legge.

Mr. LEGGE—I am extremely obliged to him, and I regret it is not in my power to receive it at his price.

The PRESIDENT said, Mr. Malden had made an offer, and had not received an answer to it.

Mr. LEGGE said he would give Mr. Malden 14½d., that was the best price he could offer.

Mr. MALDEN said he could not accept it.

The PRESIDENT said Mr. Carter offered to Mr. Legge 300 Down tegs at 1s. 4d., and 280 Down ewes at 1s. 1d.; if Mr. Legge refused them they were open to any other buyer.

Mr. LEGGE said trade was in such a state that he could not possibly take it at that price.

The PRESIDENT said, Mr. Harvey had requested him to offer to Mr. Unwin 900 half-bred Leicester tegs and 250 Down tegs at 15½d.

Mr. UNWIN said he would accept them. (*Cheers.*)

Mr. TOWER said before dinner he had offered his wool to Mr. Johns, and he would repeat the offer now: it consisted of Merino-Leicester and Merino-Saxon fleeces, part of 1839, and he asked 16d., 15d., and 14d. for them.

Mr. JOHNS said the 16d. and the 14d. he would give, and for the other he offered 1s.

Mr. TOWER said he did not make the offer before, because he would not bring Saxon into competition with South-down; but when he heard the sum given by Mr. Unwin he thought he was entitled to do so. There was only a penny between them in 239 fleeces, and they must divide that.

Mr. JOHNS said Mr. Tower misunderstood him—he offered 1s. for the lot for which he asked 15d.

Mr. TOWER said he could not take that.

No further offers for wool were made in the room, and the company broke up about seven o'clock.

SALES OF WOOL.

The following is a detail of all the sales of wool effected, as extracted from the official returns:—

BOUGHT BY MESSRS. BELL AND SON.

Fleeces.		Fleeces.	
Mr. John Smith	250	Mr. Andrews	84
— M. Mason	103	— Perry	1645
— Surrey	140	— Steele	190
— S. Reeve, sen.	115	— Jas. Clarke	145
— S. Reeve, jun.	150	— Bright	210
— C. Low	109	— Bernard	270
— S. Low	54	— G. Carter	580
— J. Crush	145	— J. Kemp	734
— Cozens	540	— Downes	37
— Bulwer	79	— L. Tabrum	416
— I. Crush	569	— W. Crush	509
— John Algar	185	— G. Parrie	340
— E. Chapman	50	— Ketcher	84
— Ratcliff	80	— Williams	73
— Yell	265	— Abrey	61
— Barnes	72	— S. Oddy	45
— Dennis	85		
— S. Oddy	45		
		Total	6304

BY MESSRS. W. AND T. JOHNS.

Fleeces.		Fleeces.	
Mr. J. Tyrell	420	Mr. Shepherd	90
Mr. Robinson	51	— Townsend	170
— Clark	27	— Josling	234
— Aldham	84	— Ridley	864
— Haines	61	— C. Page	2035
— Cox	80	— John Page	610
— Cannon	113	— Stebbing	65
— Phillips	106	— T. Abrey	106
— Cousins	224	— Heywood	223
— Parvitt	238	— Webb	133
— Joscelyne	94	— Ketley	120
— Spurgeon	294	— Raynham	430
— Brown	138	— Benson	206
— Thorn	74	— C. Crooks	50
— Hockley	54		
— Gladwin	112	Total	7365

BY MESSRS. S. F. AND S. UNWIN.

Mr. Bridge, Ingatstone	440 hogs. $\frac{1}{2}$ -breds & downs	154
	220 Down ewes	124
Mr. Boys, Goldhanger	90 Down ewes	124
	80 hoggets	154
Mr. Quihampton, Goldhanger	110 hoggets and Kents ..	154
	130 ewes, Down ewes half-breds	124
Mr. Harrey, near Mersea.....	1150 hogs. $\frac{1}{2}$ -breds & Downs	154
Mr. Butt, Woodham Walter ..	120 Down ewes	124
Mr. Cousins, Terling	130 hoggets	154
	50 ewes	124
Mr. Ellis, Woodham	17 hoggets	154
	17 ewes	124
Total fleeces		2554

BY MR. CYRUS LEGGE.

.. T. Tower, Esq.	87 fleeces of Merino Leicester Cheviot	14
	229 do. Merino Saxon, of which 90 were tegs, indifferently washed ..	15
	250 ditto, well washed ..	18
W. and H. Marriage	204 ewe fleeces	13
Mr. Thos. Mayott, Burstead ..	181 fleeces	
Mr. J. Wright	331 ditto	
Mr. Cleve	390 ditto	
Mr. Malden	450 ditto	

BY MR. ELKINGTON.

Mr. Christy, Broomfield	204 Down tegs and ewes	
The following showed, but, we believe, did not sell:—		
Mr. T. Mee, Great Burstead ..	112 fleeces	
Mr. J. Marriage, jun., Moulsham Lodge	252 ditto	
C. C. Parker, Esq.	215 ditto	
Mr. W. Crush, Chignell	100 ditto	
Mr. Reeve, Writtle	115 ditto	
Mr. J. W. Addy, of Rolleston, Writtle, prior to the fair, sold to Mr. Archer, of Bishop Stortford, 700 tegs, at 1s. 3d., and 500 Down ewes 1s. 1d.		

FLY IN SHEEP.

SIR,—In reply to the "Nottinghamshire Farmer" respecting *tar* as the application he used on his sheep for the fly, he asks three questions, neither of which I am prepared to answer. But I would strongly recommend his using the "sheep dipping composition," prepared only by Mr. Thomas Bigg, 15, Crawford Street, Portman Square, London. Having used it now for some years, I, as well as many others, can give testimony to its efficacy and usefulness, if properly applied. I have dipped in August 2000 sheep, and have only had but one struck with fly, occasioned by scouring. Another great benefit he will find is that the sheep that have been dipped will be grazing in the hottest weather, whilst those that have not been dipped will be in the shade, or where there is no shade will be together in large groups terrified with flies. He may think it too much trouble perhaps, but if only he once begins to dip, I am certain he will not leave it off. Yours, respectfully,

A KENTISH FARMER.

Eastchurch, Isle of Sheppy, July 3.

TITHES.

SIR,—I observe in a cotemporary Journal the following remarks relative to the "Bill to exempt stock in trade from being assessed to the poor-rates."

"Though we fully agree in the policy of exempting stock in trade, and personal property from being assessed to the poor-rate, we cannot help regretting that the present opportunity has been lost of introducing some provision for rectifying the hardship of rating tithes according to the rule recently laid down by the court, in the *Queen v. Capel*."

"As regards tithes the rating of them upon the same principle as lands and hereditaments are rated, must be admitted to be a hardship. A landlord receives his rent as absolute property; it is his own without any labour or service. Such lay property may belong to minors, married women, persons bedridden, lunatics, and others altogether incapable of rendering any equivalent; whilst the tithe-owner, if an ecclesiastical person, claims his tithes or his rent-charge, as a compensation for his clerical services."

Now surely the necessity of employing this unlucky *if* is sufficient to upset the argument altogether, since if those services are not to be performed, there can be no reason why the tithes should not be rated in similar proportion to the land itself, and no one, it is to be presumed, would make a distinction in the rating of tithes, whether the same should be vested in the church, or in lay impropriation. Moreover it is not fair to couple the tithe-owner with the land-owner, but rather let the corn-grower and the tithe-gatherer go hand in hand, although the distinction may not be very material. Theoretically, the landlord may be said to pay the poor-rates, but practically, the money comes out of the pocket of the husbandman or tenant of the soil, and no one will venture to assert that he does not perform, or render an equivalent in labour and attention.

The determination of the question in the case of the *Queen v. Capel*, has relieved the valuers under the parochial assessment act of much perplexity and indecision; I happen to be one of that number, and unless arguments more conclusive than any which I have hitherto heard, can be adduced in support of the tithe-owner's claim to undue abatement from the rent-charge in making the assessment, I shall hold it equitable that as the tithe-owner had the actual amount of the parochial rates (payable in respect to those tithes) added to his composition (as determined by the average of seven years previous to 1835) in order to liquidate similar parochial claims in future, so a valuation of the land itself (as well as the rent-charge upon that land) ought to be founded upon the price of grain during that period, and not upon the improved value of land at the present moment, arising out of fortuitious circumstances which the chances of seasons or the malignity of men may entirely subvert. I should say, as the gross estimated rental of land in a parish is to the net value thereof, so is the whole amount of the rent-charge to the sum at which it ought to be assessed. Now whether we take this rule as our guide—whether we take the amount of rates paid in respect of tithes during the period before alluded to, adding 5 per cent. for contingencies and the trouble of collecting the rent-charge, and deduct these from the gross amount—or whether we deduct 15 per cent. in one sum, the assessment will, in most cases, come out nearly the same.

I remain, Sir, yours very truly,

Dilham, July 1, 1840.

W. NORFOLK.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Being a constant reader of your inestimable Journal, I am always gratified in perusing any useful piece of information communicated through that channel, whether given editorially, by a single-handed correspondent, or, perhaps in not a worse way, from a little sound friendly argument proceeding from two parties, the last-named being undoubtedly the best, and no doubt would be even more resorted to, on many occasions, when knotty points in agriculture became a matter of dispute, were it not for the unpleasant feelings which but too often arise between the parties, by each thinking his own way right: it is matter of regret that such is the case, seeing that many inexperienced agriculturists might profit from a friendly discussion even in a public journal.

My reason for troubling you at this time, is owing to a correspondence I have lately seen, between a Mr. Kinmouth, somewhere resident in Armagh, and a Mr. Gardiner, in the county of Ayr, on the subject (and a most important one, too) of drainage of land: whether parallel tile-drains, or transverse stone-drains, are the most beneficial, economical, or permanent? Now it is almost in vain for me to say, living in Ayrshire as I do, that I decidedly approve of the system of parallel tile-drains, and can, with safety, say, that what Mr. Gardiner has already published on the matter, is the uniform opinion of the most enlightened agriculturists of this great and flourishing county, the experience of half a century having proven, beyond all doubt, that collateral or transverse drains, filled to a necessary depth with stones, may help to relieve the land of superabundant moisture for a few years; but such would never be resorted to now by any man, in his right senses, that wished his land thoroughly and permanently drained. Mr. Kinmouth, no doubt, from seeing that he had the worst of the argument, has very prudently withdrawn from the field, not, however, without grossly insulting Mr. Gardiner, by doubting the veracity of his statements, which Mr. G. has resented, perhaps rather keenly, still I consider him justified, as no man of any feeling can, or should, remain silent, after having his word doubted in a public journal; or, undoubtedly, guilt will be the construction put upon it by the public mind.

In a later number of your Journal, I have observed a most malevolent, vindictive, but at the same time unmeaning, attack on Mr. G., by some snappish scribbler, signing himself S. B., Newry, in which he makes a mighty fuss about two lines having been wrongly quoted from "Hudibras" by Mr. G.; as if all his argument could be upset by that single circumstance. Now I, who have never read "Hudibras," nor any work of so little utility at the present day, have seen the lines quoted the self-same way over and over again; but now, thanks to this immaculate virtuoso, shall be able to detect and correct them, should they come under my notice again. Exulting at this wonderful discovery, he sincerely says, that ignorance and error he has always found to be twin brothers: well, granting this to be the case, we shall just see before leaving S. B. whether he cannot be foiled with his own weapons. He then goes on blaming Mr. G. for putting a wrong construction on Mr. Kinmouth's sentiments, and endeavouring to mystify their proper sense: now I deny that; as no man whatever, taking his words in their literal

sense, could have put S. B.'s construction on them, without some exposition of the matter, which goes far to disprove his own words, viz., that "both writers were unknown to" him. He then very frankly offers his own opinion on draining, and labours hard to prove what every enlightened agriculturist well knows to be the sentiments of our ancestors, now no more, who flourished in the century immediately preceding the one in which we live; and loudly denounces (to him) the unwelcome sound of real lasting improvement. Alas! for poor afflicted Ireland, if all her sons were like this unhappy S. B.! Luckily, there are many who hold different views from this son of the good old times, as is amply verified, by so many of the influential youth of Ireland annually visiting and residing in our county for a time, to learn the most approved modes of husbandry; and by so many of our native Scotch being called upon to act as bailiffs, stewards, &c., to the Irish nobility and gentry. Poor S. B. does not wish to hear any thing of the matter, but, like the hedge-hog, coiled up in his prickly skin, spits his venom on all who would gladly assist him to what he does not know. Deeply read in ancient history, he knows the year, nay, I suppose the very day, and by whom, the foundations of the pyramids of Egypt were laid? In a word, what is it that this modern Socrates does not know? One word more to S. B., and I have done with him; let him be perfectly sure that he is right himself, before attempting to put others right: let him go to school and learn his multiplication table, and "don't be after telling us," that one million of drain-tiles is *exactly* the one-hundredth part of what would be sufficient to drain 400,000 acres, at 3000 to the acre! "Ignorance and error," says S. B., "are twin brothers," so if the cap fits, just let him wear it. Excuse the length of this letter, and by publishing it, oblige Sir, your very obedient servant,
Ayr, June 29, 1840. R. B.

QUERIES ON DRAINING.

SIR,—I take the liberty, through the medium of your Journal, of requesting an answer to the following questions, and which I trust some of your numerous agricultural readers acquainted with the subject will answer:—

How does wood answer as a bottom or sole for tiles, in draining pure moss? What thickness ought the boards to be made, if they answer? What depth is the best to cut moss drains? And also, how wide ought the drains to be from each other? Having commenced draining about thirty acres of pure moss, I find that the tiles do not answer without a sole, and the moss is so soft in many places that slates sink unequally. I am preparing boards of from 10 ft. to 15 ft. in length, by half an inch thick; but before doing so to any great extent, I would feel obliged by any of your readers, who have a knowledge of moss-draining, giving me the benefit of their experience. It may be as well to mention that the moss is level, and nearly six feet deep of moss, without fall sufficient to allow the drains to be cut to the bottom of the moss, although they can be cut four feet.

I hope you will permit a corner of your paper for these queries, and will much oblige,

Sir, your most obedient servant,

A FARMER NORTH OF THE TWEED.

CULTURE OF THE CAMBRIDGE-SHIRE FENS.

In the preface to Part II. of Vol. LI. of the *Transactions of the Society*, noticing Mr. Glynn's paper "On Draining the Fens in Cambridgeshire and Lincolnshire by steam-engines," a conjecture is hazarded, that "the time is probably not far distant when all the fen-lands in the kingdom shall be enabled to exert their native exuberant fertility." So far as the fens of the *Bedford Level* are concerned, this conjecture is being rapidly verified; the more complete and certain system of drainage by means of the steam-engine, as well as the great improvement of the outfall, having enabled the occupiers of the land to avail themselves of the valuable strata of clay and marl, which are now accessible at a very short depth from the surface, and by which a new and most advantageous system of farming has been introduced.

As some account of this new method may be interesting to such members of the Society as are acquainted with agricultural pursuits, I have endeavoured to collect some information on the subject, which I now with great deference submit to the Society.

The practice of using clay and marl upon fen or moss land in other parts of the kingdom, especially in Scotland, has been in use for many years, and their good effect has been fully appreciated; as may be seen in Mr. Steel's excellent work on the subject;* the mode of practice laid down there, however, being somewhat different from that in use here, it will not preclude any benefit which may be derived from such information as I have been able to obtain.

The soil of the fens is a dark-coloured, almost black, peat, mixed with silt, and graduates downwards into spongy peat. In many places occurs a tenacious soapy-feeling peat, mixed with micaceous sand, in which state it obtains the local name of *bear's-muck* forming a barren untractable soil, which, by drying, becomes of a stony hardness. The peat in some parts rests on a thick stratum of blue calcareous clay, called *gault*:† but, in other parts, a deposit of gravel, varying in thickness, is found between the peat and the gault.

The great Bedford Level contains upwards of 300,000 acres, which formerly were subject to continual floods, so that the cultivation of the land was exceedingly uncertain; and, at best, it could only be worked in spring and summer. The usual course of husbandry was to pare and burn the sod, as a preparation for coleseed or rape, which was fed off by sheep, and was followed by one or two successive crops of oats, according to circumstances; and was then laid down to grass for two or three years, when it was again broken up, and the same routine of crops observed. The crops, of course, varied according to the situation of the land: where it was very low and wet, the oats rarely exceeded four or five quarters per acre, and were light in quality; but in more

favourable situations, where the land was higher and stronger, the crop would be from five to eight, or even ten, quarters per acre: all this, however, depended upon the state of the land, as to being flooded or not. Fifty years ago, the drainage was very inefficient.

The outfall for the waters having been much improved by forming the *Eau Brink Cut*; by scouring out and deepening the Hundred-foot River, which communicates with the Eau Brink, and conveys the upland waters of the river Ouse more directly to sea; also, by scouring out and deepening the river Nene and other main drains, and by the introduction of the steam-engine, the drainage has been so complete, that the land is now esteemed almost *certain* from being injured by floods: the consequence of this has been a new system of farming, and the general introduction of wheat crops, and the practice of *claying or marling the land*. This complete drainage has enabled the farmers to dig for these earths with success; and the benefit arising from their being laid on the land, is as great as that effected on the light sand lands of Norfolk, and by the same means.

Where formerly an uncertain crop of very inferior oats was grown, and in many cases left on the ground, the farmers being unable to get them off from the rise of the waters; now, from the use of clay, they grow excellent crops of *wheat* and of oats of a very superior quality. The land is also much improved and kept in heart by the *manure* they are now enabled to put upon it; for formerly a *fen* farmer never thought of using manure, which, indeed, he could not often get upon the land if he were inclined so to do. Instead of the former course of pare and burn for coleseed, and then oats, oats and grass, the present mode is, in the first instance, to pare and burn for coleseed, then oats, *wheat*, *clover*, *wheat*, and *fallow for coleseed*, with occasionally a crop of beans, which is exceedingly productive; so that the old mode of paring and burning every five or six years is now very generally going out of use where the lands are clayed. Another advantage from this new mode is found in the land being less obnoxious to the ravages of the *wire-worm*: where the fen-land has not been clayed, and at the same time lies dry (*drummy*), the wire-worm abounds to the serious injury of the farmer; but it has been found that the worm does not so much infest the land where it is made heavier, and more consolidated, by the clay.

The mode of claying the land is as follows:—

Trenches are formed the length of the piece of land, 7 feet long, and 30 inches wide at the surface:—they are dug sloping down to the clay, where they are 8 feet long by 4 feet wide; the clay is taken out *two spits* deep, of about 14 inches each, and thrown on the land on either side. When the first trench is finished, another is begun, and so on, leaving a heading between each trench of from 20 to 36 inches. When the line of trenches is completed, another is commenced at the distance of from 12 to 20 yards, according to the quantity of clay intended to be laid on the land; but the general quantity is about 200 cubic yards per acre. A pit of the dimensions above stated, viz., 8 feet by 4 feet, and 2 spits of 14 inches, or 2 feet 4 inches, will contain 74 feet 8 inches, or about 2½ yards.

The depth at which the clay is found varies considerably: in some places it is touched by the plough, and so on from 2, 3, to 8 feet. The

* "The Natural and Agricultural History of Peat Moss, or Turf Bog." By Andrew Steel, Esq. Edinburgh, 1826. Lang and Black.

† A fair sample of gault was found to contain 33·7 per cent. of carbonate of lime: the carbonic acid given off from it by the action of acids, had nearly the same kind of unpleasant odour as that from fetid limestone or swinestone.

expense per acre of course varies according to the depth of the pit, and the quantity laid on the land, from 50s. to 70s. A very great advantage attending this mode is the saving of expense, *no horses and carts being required*. From the peculiar nature of the fen earth, these trenches are soon ploughed in, and no traces left of them.

It has been stated that the course of cropping on these clayed lands is very different from what it was before claylag. In addition, it may be observed that the growth of vegetable crops, such as mangel wurzel, potatoes, &c., is much increased.

GEO. AIKIN.

December 1838.

IMPORTANCE OF AN AGRICULTURAL EDUCATION.

The following article is from the last number of the *Schoolmaster's Magazine*, a publication which does honour to the north of Ireland. The observations we deem extremely appropriate, and if acted on, Ireland would shortly be different from what she is :—

"Agriculture requires a very considerable degree of intellectual knowledge; and hence civilization and refinement always accompany superior cultivation. It is indispensably necessary for the successful farmer to know the particular season in which the different seeds should be sown and planted, and also the particular kinds of soil congenial to the different kinds of grain. He would require to know the manner of treating each to the greatest advantage, with the least possible expense—to ascertain what kind of crop will generally produce the greatest profits without impoverishing the soil—and what changes may be necessary, even on the same field, so that the ground may not 'run out' (as the farmers express it). As connected with agriculture, it is necessary that the labourer should be very well acquainted with the excellences and defects of the different breeds of cattle—the best method of rearing and employing them to good advantage—the different diseases to which they are liable, and the most efficient means of curing them. These he should study on scientific principles, assisted by the dictates of experience. Such are some of the important studies to which the agriculturist who would successfully cultivate the earth should direct his special attention; and such a pursuit is by no means unworthy even in persons who rank in the highest stations of society. It was held in much esteem by the Romans, and one of their greatest generals, Cincinnatus, was called from the cultivation of the farm to command the armies of the commonwealth, and to direct the affairs of the state with absolute rule and authority. In modern times it engaged the royal attention of George the Third, who devoted himself to it with unwearied zeal. The Emperor of China annually ploughs a furrow, holding the plough with his own hands, in order to engage attention to this art among the most ennobled of his subjects. As agriculture is, at least nominally, held in high estimation among all civilized nations, it should not be entrusted entirely to the hands of ignorant individuals who can scarcely read and write, and whose ignorance would render them the slaves of ignorant, of vulgar prejudices. No; it should be placed under

the guidance of persons competent and willing to prepare themselves for a scientific discharge of the duties required. We have a variety of schools and colleges for the instruction of pupils in medicine, law, architecture, and other arts and sciences, and is it not truly astonishing that an occupation, on which not only the existence of every individual depends, but all the comforts and conveniences of life, is left almost exclusively in the hands of un instructed persons, who must, of course, follow the beaten track which custom has marked out for their direction, because they have neither mental power, knowledge, nor confidence sufficient to venture beyond it; and for the poor farmer to hazard experiments without sufficient reason to anticipate a profitable result would, in the present age, be extremely imprudent. It is not for us at present to say whether emigration should be encouraged or not, but this we broadly assert, that if our lands were properly cultivated, we could support a much greater population. In our best laboured districts an ingenious agriculturist could perceive much to be improved, owing to the neglect of draining, &c., in the improper application of particular plants to uncongenial soils, or in the waste grounds, almost, if not entirely useless. The immense produce which the earth is capable of yielding is almost past conception. Every improvement in agriculture is followed by greater luxuriance; and if persons were properly educated for the profession, and societies encouraged for the dissemination of agricultural information, as is the case with all the liberal arts, a given portion of ground could be rendered capable of supporting in comfort and comparative independence a much greater number of individuals than at present. This would, to a considerable extent, remove two great evils that afflict our country—poverty and crime, as idleness has been found to be the parent of vice and misery. It is well known that much good has been effected by the enterprise and experiments of comparatively uneducated agriculturists; and of what immense value would it be, if agricultural schools were established throughout our land, under the management of well-qualified professors, who would give suitable instruction on all branches of science necessary to the man who would become a successful agriculturist! A course of varied experiments could be adopted by these different institutions, and a copy of these modes could be transferred to each, stating the results, whether favourable or the contrary. Thus the heavy loss of ignorant speculators in husbandry would be avoided, both to the persons themselves and to the community. It might be well, at the outset, to have small text books for the mere tyro in farming, explaining the proper season for planting the different kinds of grain, the average quantity of seed required for each, in proportion to the ground sown and the manner of cultivating each. Indeed, such a book might be read alternately in all good schools, to much advantage. In public seminaries the lessons could be exemplified on the farm. We confess we have only glanced at the happy consequences that might result from such schools; and we now ask, why does not government encourage such institutions? The additional produce in the neighbourhood of such schools would be very considerable, and other farmers would, by imitation, carry out the plans to an amazing extent. Add to this the advantage of young men, after having become fully acquainted with the subject, both in theory and practice, spreading themselves over the land, with ability

and zeal for carrying into effect their superior information. Let not the ploughman toil in ignorance—elevate his mind with knowledge, so that he may not labour in vain—enlarge his understanding, that he may have a source of enjoyment in pleasing meditation, “while whistling o’er the furrowed land.”

ON TURNIP CULTURE.

TO THE EDITOR OF THE DUMFRIESSHIRE AND GALLOWAY HERALD.

SIR,—I have little of what is termed “a turnip soil,” and have been obliged to raise the crop mostly on a cold clay; yet my experience leads me to the belief that on such soils, where they can be thoroughly *drained* and well wrought, turnip crops may be raised scarcely inferior to those on freer soils. My crops have always been as good as any in the district. Heavy close-bottomed soils, in such wet seasons as the last, must be expected to produce light bulbs. I had a remarkable proof of this. Part of my turnips were on a high and rather flat ground, where surface water commonly lodged, and to take away which I had cut an under-drain through the middle of it. In autumn, both the bulbs and tops were less on that part, than on the rest of the field; but, on examining it, my curiosity was much excited by observing what at some distance appeared a *green dyke* winding through the middle of it. On nearer inspection, I found it nothing more than a crooked stripe of *huge turnips*, which kept by no one drill, but exactly followed the line of the *drain*. This almost made me convert to “subsoil ploughing.” I sold the crop of that field to a sheep-farmer for four guineas per acre; and though he did not bring his ewes to the field till the end of February last, when more than half the crop was destroyed by frost, still he had feeding for about 4d. weekly per head.

On such soils my maxims are—1. Clean and pulverise the soil as well as possible. 2. Form the stitches as *ebb* as possible. 3. Give a fair quantity (say 30 carts) of *well-prepared* dung, carefully spread. 4. Cover it in immediately, and as *lightly* as possible. 5. If the top of the drills are cloddy or uneven, go over them gently with an iron-toothed rake, and lay the stones and clods between the drills; one attentive woman will thus go over almost two acres in a day, hence the expense is trifling. 6. Give, at the *very least*, 5lb. of seed per Scotch acre; and, *above all things, take care that the seed is kept near the top, and lightly covered*: very little that is sown deeper than a quarter of an inch will grow.

Experience might long ago have taught the farmer, that turnip seed will germinate *only* in favourable circumstances. If the covering is so deep or close as to prevent the free access of air, germination will not be perfected, and the embryo will die. The seed contains very little to support the embryo plant; hence the plant is rendered dependent on the soil as soon as the seed-blade is formed. If the soil is poor, the plant will slowly push its root towards the manure, and can make almost no progress till it has reached it. If the dung has been covered *deep*, the plants will be so long in seed-blade that the turnip-beetle (or fly) will destroy them.

To-day, I saw some garden turnips whose bulbs were about the size of a boy's marble, but whose

tap roots must have been more than six inches long—this was owing to the gardener covering the dung too deeply.

On heavy soils, I find the lightest rollers of the turnip machine are injurious, by consolidating the soil too much. I, every year, find that the seed sown by the hand, in the old way, gives more than double the number of plants which arise from the same quantity of seed put in by the machine. Sowing by the hand costs about double the expense of machine sowing, and is not easy practicable on a large scale. But the crops shew its decided superiority, and this fact demonstrates the importance of sowing and covering the seed very lightly.

Four years ago, when I ordered my servants to give at least five pounds to the acre, I was laughed at, and told that two pounds were ample abundance. I stated that I meant to give the fly a hearty feast, and yet leave myself a good crop. By following this rule, I never need to sow more than once, and this gives my crop the advantage of some weeks' growth over those who, by sowing deep and sparingly at first, need to sow the same ground twice or thrice, have more labour than I have, and in the end require more seed. In 1838 and 1839, I was thinning out, while some farmers were sowing the third time.

An opinion prevails, that bones bring turnips sooner into rough leaf than dung does. I believe the difference is entirely owing to the *management*. The dung is often ill prepared, and commonly laid deep, while the bones are put near the seed. But, were bones put as far from the seed as the dung usually is, they would give later plants than the dung does. I had a proof of this in 1837. Part of the field was then sown with dung and bones, part with dung alone, and part with bones alone. I gave 20 carts dung per Scotch acre to the first lot, covered dung slightly, sowed 20 bushels bones per acre above this covering, and covered the whole. My servant, in my absence, gave 35 carts dung to the acre, and exhausted my stock. I gave no bones to this lot, and 40 bushels alone per acre to the third lot. The soil of all the three lots was very similar—a thin and rather free clay-gravel. The superiority of the first lot over the second was barely perceptible; but the inferiority of the third lot was most manifest during the whole season. The second and third lots were sown on the same day; yet the boned ground appeared full two weeks later than the ground which had dung alone. A similar gradation appeared in the following grass crop.

Now, Sir, I have exceeded your limits, and if any of your more intelligent farmers find fault with this, let them be so kind as show us the better way; for I like to see you, now and then, have some “scrap for the farmer.”—Yours, &c.

7th July, 1840.

G.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—I should esteem it a favour of some person who is a judge of a draught horse's conformation, would, through the medium of your very valuable publication, describe the *parts*, and what the different variations of these parts are liable to, form, position, and development; also what are the consequences of these variations. By inserting this in your next journal, you will for ever oblige your obedient servant,

Drogheda, April 20.

A CONSTANT READER.

ON FOLDING SHEEP.

BY THE LATE JOHN ELLMAN, ESQ. OF
GLYNDE, FROM A LETTER TO SIR JOHN
SINCLAIR.

I am not so far an advocate for folding, as to think it right in all situations; particularly in small inclosures, where driving the sheep to and from fold, might materially injure them, and destroy a great deal of grass, by trampling on it. I am ready to acknowledge, that a great number of sheep might be kept on a given space of land, divided into small inclosures, by laying them in small parcels, than if kept together in one flock and fold. Acknowledging this, does not prove, that folding, in other situations, has not its advantages, particularly in an open country. In such an open situation there is not the same injury done, by treading down the grass, as in small fields: but on the contrary, the farmer is enabled to manure such part of his farm as he may think proper, particularly that which lies at a distance from the farm-yard, and which seldom, if ever, has the dung cart going on it. Mr. Young observes in his Annals, "I believe, the reason why farmers are such warm advocates for folding, arises from the power it gives them of sacrificing the grass land to the arable." This I do not agree to, as, on many farms, the sheep are supported more from the arable, than the grass land, and often folded on the latter. Taking the sheep off their feed to lodge in the night, we think of great use, as it prevents dropping their soil on the pasture (what our shepherds here term *stenching* their food), which we look upon as of great use at the time when we are feeding our sheep on tares, clover, turnips, or any artificial food. I always caution the shepherd, as soon as the sheep have done feeding, to drive them off immediately, and not let them lie down, or stop to soil their food. Some shepherds are not so careful: in such cases, I observe the sheep never eat clean. I believe few animals (indeed, I know of none, except swine), which like to feed where they drop their soil, and it is fair to suppose, that the All-wise Disposer of events has so ordered, that the brute creation should be endowed with that degree of instinct which enables them to refuse such food as is not wholesome. This we have an opportunity of ascertaining, when we fold on the grass lands. The sheep always refuse the first shoot of grass after folding, and will not take it while they can get any other; and, if obliged to feed on it, it is certain to cause the flux. Another advantage arising from folding, is keeping the sheep confined in the fold, particularly in the autumn, till the hoar frost and heavy dews are gone off the grass, which prevents the disorder here called the red-water, and which in some places is called the blood or white water; in fact the dropsy.

This disorder I believe most sheep are liable to, and is caused by taking into the stomach too great a quantity of fluid. Many other reasons might be advanced in support of folding; but I hope what has been stated is sufficient to prove that the practice has some merit. And now I beg leave to state the *quantum* and value of folding.

Just 20 Southdown sheep (if a larger sheep, a less number will do) will fold one rood or rick per night; 3200 will fold one English acre per night. We value the manure at from 35s. to 50s. per acre; the goodness of which depends much on how the sheep are kept; if kept on artificial food, such

as tares, rape, clover, turnips, &c., they will drop more soil than if fed on grass only. Supposing we estimate the folding at 40s. per acre, it will amount per year to 4s. 6½d. per sheep, 22½. 16s. 3c. per hundred, or per thousand 223½. 2s. 6d.. This calculation is made, supposing the sheep are folded through the year. If it is a breeding flock, it might be well to omit folding for five or six weeks immediately after lambing, as the young lambs might suffer from being trampled upon, and from driving to and from fold, would often lose their dams, and suffer in that way more than if they remained quiet.

I have often disputed the practice of folding with the late Mr. Bakewell, who always, to make use of his phrase, said, "It was robbing of Peter to pay Paul;" and there we stopped. But if I had not to boast of bringing that truly celebrated breeder over to my opinion, I can say, that no argument I ever heard him, or any other person advance, in the least altered mine.

ON THE CULTIVATION OF POTATOES FROM THE SEED.

BY W. BUCHANAN, ESQ., OF CHALK LODGE, NEAR
CHESHUNT.

Having been anxious for some years to obtain new varieties of the potato from seed, that being of course the only way of procuring them, and having succeeded in obtaining several which are very excellent, I shall be happy if I may be allowed to call the attention of the Society to the subject, and by that means diffuse the advantages to be expected from resorting to the same means of cultivation. The ready means of continuing a variety by cuttings, is probably the reason why so little improvement has been attempted; but when it is recollected that hardness, flavour, fruitfulness, and several other qualities, are most to be improved by reference to the seeds, and that every vegetable degenerates if that is neglected, I shall have no need to name other advantages. The accompanying specimens are each from the second year's produce of single seeds: they have not been selected, but taken as they were placed in rows for winter preservation, from many others of probably equal value; for when they were raised in October, all which did not appear desirable were rejected. The seeds had been sown in April 1836, and kept in shelter, but without heat. When about an inch in height, they were transplanted into separate pots; and in May were put into the open ground, at two feet distance. In October they were dug, and only the most fruitful, or best-shaped, were retained, many having from fifty to seventy at a single root; these were taken care of for the winter, and the accompanying specimens are of the past year's (1837) produce. It will be apparent, from their size and abundance, that reference to the seeds is a ready and valuable process; and it may be expected that, by continuing it, a variety will be obtained sufficiently hardy to bear our climate. The increased abundance of several of the varieties is very great; and from the seeds of some of these seedlings which have been preserved, and accompany them, greatly improved kinds are reasonably to be expected. The seeds are to be obtained from the berry by

washing, and being dried; in the third year, any careful grower will have enough, of the kind most suitable to his wishes and his soil, to plant more than an acre; and that point is now strongly urged, as the difficulty of obtaining them, in sufficient quantity and time, has been a reason with some for not attending to it.

W. BUCHANAN.

Jan. 6, 1838.

Accompanying the above paper were a small parcel of potato-seeds and a few samples of nine varieties of potato.

The samples sent, being only two years from the seed, were, as might be expected, of small size; and the committee not being able to form any correct judgment of them in their then state, and not having a sufficient quantity to make any experiments, recommended to the Society to prevail, if possible, on some member of the Society to grow them, and to report the result. The recommendation was adopted, and Mr. Williamson took charge of one set of the samples, and Mr. H. Roberts of another set.

Mr. Williamson entrusted his samples to Mr. Hixon, a market-gardener, who grew them in some rich ground in Battersea Marsh, each plant being two and a-half feet apart. The potatoes were planted whole, and were taken up at the usual time. The produce was divided into *wares* and *chats*, the former being the technical term for those potatoes which are of saleable size; the latter, for those small or under-sized ones which are only given to the pigs:—

No. 1 yielded 30 wares and 10 chats; being a large produce, and apparently of good quality, only the wares are small.

No. 2 yielded 0 wares and 27 chats, unsaleable, and of bad quality.

No. 3 yielded 5 good wares and 3 chats. They ripened early, and seem to be the best of the whole parcel. All Mr. Hixon's professional neighbours agree respecting the probable excellence of this sort.

No. 4 yielded 15 wares and 19 chats; is a good-skinned potato, and probably of good quality, though not equal to the preceding.

No. 5 yielded 0 wares and 139 chats. The haulm was very luxuriant, and the potatoes were not ripe when taken up, though the haulm had been destroyed by the frost. It appears to be a late, but probably very productive variety, better fitted for cultivation in Cornwall or in the Channel Islands, than in those parts of the country which are liable to autumnal frosts.

No. 6 yielded 0 wares and 58 chats, which look very unpromising.

No. 7 yielded 10 wares and 3 chats, all of which are more or less tubercular, and probably not of good quality.

No. 8 yielded 12 wares and 0 chats, and appear to be of very good quality.

No. 9 yielded 1 ware, and 30 chats no larger than marbles, but which seem to be of good quality.

Mr. Roberts's samples were planted in March, in a soil rather poor and gravelly, and inclined to wet. They yielded very differently in point of size, and were by no means prolific:—

No. 2 are small, but somewhat better than the same variety grown by Mr. Hixon.

No. 3 are smaller than the above, but apparently of nearly the same quality.

No. 5 of middling quality, but very good size.

No. 6 are larger, and of better quality than Mr. Hixon's.

No. 7 are good sized, and seemingly of good quality.

No. 9 were not ripe when taken up, but were of middling quality and saleable size.

It was resolved to continue the experiments for another year, when the potatoes may be considered as having arrived at their respective degrees of perfection.

ON FEEDING SHEEP ON TARES.

SIR,—Can any of your correspondents or intelligent readers inform the public through the medium of your widely circulated magazine, as to the feeding sheep on tares?

1. What number of sheep can be fed on a 10 acre field of tares.

2. What is the condition of sheep fed on tares in comparison with sheep fed on grass or turnips? We want some crop for a four-course shift, which may take the place of turnips, which soon sicken the soil if repeated every four years; and tares appear to me the most likely substitute. Any other practical information on the sowing and feeding off of tares will oblige many who are labouring under the disadvantage of not being able to procure that correct information which ought to be afforded by our agricultural Societies through experimental farmers. Yours,

June 15, 1840.

A NORTHERN.

TANNER'S BARK AS MANURE.

SIR,—One of your correspondents asks, of what value as a manure, bark, after having been used for tanning, is considered to be? My opinion is founded on a trial, and I think, if the bark can be had for the leading, and is to be found at about a mile distant, it would pay the expense of use. It ought to be put in and spread over the yards in October, and the cattle should be allowed to travel upon it all winter, the dung, &c., making it much more valuable. There ought to be a tank near the yards, and the liquid manure ought to be pumped over the bark, &c., as often as possible.

Beware of using bark fresh out of the tan-pit; it will destroy vegetation. My neighbours spread it under their gooseberry trees in order to prevent weeds growing, and thus save the expense of cleaning.

Your obedient servant,
I. K.

ON THE USE OF NITRE.

SIR,—A great deal has been written lately on nitrate of soda as a fertilizer for corn and grass; but not a word, that I have seen, has been said whether it is a good manure for turnips. I have proved it decidedly good for the crops beforementioned, and should be glad to know if any of your correspondents have tried it for the latter, what quantity has been applied, in what way, whether drilled or sown broadcast, and what has been the result? An answer to these queries from some practical agriculturist will very much oblige,

A subscriber to your paper,
E. A. NICHOLSON,

Breford St. Martin, Salisbury, July 2nd.

REVIEWS.

PRACTICAL FARMING AND GRAZING;

By C. HILLYARD.

The third edition of this very useful practical work has just appeared, embellished with an engraving of the North Devon ox, fed by the author, which gained the gold medal, as the best beast in any class at the Smithfield Show in December, 1838, and also the first prize in the third class. Considerable additions have been made to the present work; many useful recipes are given for curing diseases of stock, and for dipping and marking sheep, and not the least valuable part of the book is a table containing the weight of cattle by measurement, to which is added the proportion of live and dead weights, and a table containing the measurement, and the computed, the estimated, and the butcher's weight, of the principal fat animals that obtained the chief prizes at the Smithfield shows for ten years past. The general remarks of the author on grazing, the breeding and rearing of stock, are valuable, as they are derived from a long and successful practice, and he has been well known as an eminent judge in that branch of husbandry. The directions and observations on arable farming are equally valuable and applicable truths, stamped by the seal of experience and of time, the great teachers and the primary ingredients in the wisdom of men. In the cultivation of Swedish turnips, and of mangel-wurzel, the author very much excels, and from personal inspection we are justified in saying that, if the "drills were straight," as Mr. H. very good-humouredly remarks, the crops exhibit a specimen almost of the "ne plus ultra" of root farming, or what learned writers call the "ideal," or the highest state of perfection our minds can contemplate. The extraneous matter and addenda contain the author's opinions and observations on the corn laws, the poor-law amendment act, rural polity, and on ecclesiastical matters, on which, and on similar subjects, he has taken a part, and shown an active and benevolent mind. We can safely recommend this practical work as containing much useful matter, and many valuable facts for reference, to all persons engaged in cultivation, who will always require such facts to be at hand, and to compare opinions and practices.

FARMERS' ASSISTANT AND READY-RECKONER.—By J. McDERMENT, Land Surveyor, Ayr. Second edition, improved and greatly enlarged.

Ayr: J. Dick.

The second edition of this very useful work has just appeared, and several valuable additions have been made, which cannot fail to render it still more useful to the class for whose purpose it was intended. The first part contains the prices of land in quantities from 1 perch to 1 acre, at prices varying from 5s. to 22s. 3d. per acre. The second division includes the most common parts of land surveying, tables of different measures converted, and of manuring drills in heaps at different distances at a rate of cubic yards of dung to an acre, and a very useful table of the number of tiles required to drain an acre at parallel distances of ten to thirty feet, and another containing the number of plants required on an acre of land from one to thirty-six feet distant. The third part contains the measurement of hay-stacks, of various forms, periods of standing, and the modes of computing the area, and of allowance in stones by the cubic yard, are very distinctly stated by the author, who seems to have paid much attention to this part of the book—very often a point of considerable importance. The mode is also given of computing the capacity of a waggon, and of dung-hills and heaps of stones, in cubic yards. The

last part contains tables of the weight by measurement of cattle and pigs, and we have had opportunities of ascertaining that no more correct method has yet been found than that of the author, differing from experiments of the actual weight by a few pounds only. The whole book is admirably adapted to the use of all persons engaged in country business—to farmers, land-agents, and valuers, who will have an opportunity of comparing and verifying their own modes of calculation, and of ascertaining the customs of similar professions. The price is small, and the size of the book convenient, and we have seldom seen an equal quantity of useful and varied matter so well arranged in a small compass.

ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

By DAVID LOW, Esq., J. R. S. R.

London: Longman and Co.

The third part of the illustrations of our breeds of domestic animals has been published, containing the "Hog," with a drawing of the wild boar and sow from Portugal; of a Siamese sow and pigs; of a sow of the old English breed, and one of the Berkshire breed.

The character and habits of the wild boar are very neatly described by the author, who has bestowed much labour and research in the letter-press part of the illustrations, and has accompanied the drawing of each animal with many excellent practical remarks. In many countries the wild boar forms an interesting animal for the chase; and for the much more useful purpose of food for the human race, no quadruped has been more extensively spread over the globe, or is capable of more general adaptation. The flesh of the wild boar when domesticated and fed in this country is very palatable, the hams are a rare dainty; and a cross with some of our smaller breeds has produced a quality of flesh equally tender and more firm than any of our kinds for pork. Several curious breeds of swine have been found in Africa and in the South Seas, of which a very interesting account is here given. Crosses with the Chinese breeds have been much in fashion, chiefly for roast pigs and delicate meat, but the author very justly doubts the further extension of the practice, or with the Neapolitan hog for the same purpose. The drawing of the old English sow and the Berkshire show admirable specimens of the effects of art, in deriving from these originals our present improved breeds. The aptitude of the hog in receiving alterations is wonderful, so that every county, almost every parish, has now a separate breed of that animal. The size has been much reduced to suit the taste of large towns, and in doing so there has been sacrificed, as usual with other animals, the mixture of fat with the muscular fibre, the property of fecundity and of nursing numerous progeny. For bacon, a large sized animal is indispensable, and for finer purposes we have now many excellent small breed. The Berkshire breed we have always regarded as our best for general purposes, in combining useful size and quality. The drawing here given of the old breed shows the straight back, round carcass, and square form, broad chest, and short neck, which forms the points of excellence of the present day. It would be desirable to get rid of the black colour in the present breed, for we think that of all colours the white is most agreeable to taste in all animals, as pigs and poultry, where the skin is allowed to remain in cooking. This publication will add a valuable portion

to our knowledge of live stock; the drawings are correct to nature, and finely executed; the paper and the letter-press are of first-rate quality; and the descriptions of the animals given by the author are alike interesting and valuable to the practical man and the amateur. No labour or expence have been spared by the parties concerned in making the publication worthy of notice, and it cannot fail to find its way into the library of every person who breeds stock, and who wishes to know what has been done, and may draw hints for the future.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

CAMBRIDGE MEETING,

MONDAY, July 13.—The town began to fill in the latter end of the week preceding the show, the Duke of Richmond, Earl Spencer, and several members of the council, having come down from London early to aid in the completion of the arrangements, and very high prices were demanded for beds, and stable-room for horses. A guinea a night for a bed, and half that sum for accommodation for a horse were very general demands; and this drove a great number to the outskirts and to the neighbouring towns and villages, so that those who made high charges in many instances over-reached themselves, and their rooms were left unoccupied.

This day was appropriated to the reception and classing of the stock, a great quantity of which arrived from Liverpool, Herefordshire, Notts., Beds., Norfolk, and other distant parts, as well as the adjacent counties of Essex, Herts., and Suffolk.

TUESDAY, JULY 14.—The Cattle-yard was not opened to the public to-day, the judges being engaged in examining the stock and in settling the awards.

At an early hour this morning the great mass of persons drawn hither from all parts of England to attend the meeting, were up and on the *qui vive* to join the throng, which in vehicles of all sorts, from the carriage-and-four to the humble chaise-cart, were crowding to witness the trial of agricultural implements, at Mr. Emson's barn, and in Mr. Grain's field on the Hills'-road. By ten o'clock there were neither horse nor any machine on two wheels left in the town. The roads leading to the different places where the trials were to take place presented a most attractive sight. At a little past ten the trial of agricultural implements commenced, pursuant to a programme which had been previously issued. Near the field where this was going on, on the premises of Mr. Emson and Mr. Grain, threshing and dressing machines, chaff-cutting machines, &c., were at work; and at a little distance in a large field (also the property of Mr. Grain) a most interesting spectacle presented itself in the ploughing match. Fifty ploughs started, and as the object was not to reach the goal soonest, but to reach it by the shortest and most even line, the individual interest excited by

each competitor was maintained throughout. The multitude of people on this spot was very large, and the number of horsemen galloping to and fro, the carriages filled with ladies and gentlemen, and the cheerful influence of an unusually fine day, created a scene which we have seldom seen surpassed.

There were no prizes for ploughing originally offered by the Society, but a number of gentlemen being desirous that while the principal cultivators of the soil were competing in the production of stock, testing the different varieties of seeds, and bringing the implements of their calling to greater perfection, there should be a little rivalry amongst the labourers, subscribed for this purpose. The result was highly honourable to Essex, the first prize being carried off by a servant of that venerable patron of Agriculture, Lord Western, and several others also found their way into that county.

The match took place in a field about two miles from Cambridge, on the Newmarket road, and we were highly gratified to see such thousands congregate to witness and encourage the labourers of England. Pedestrians and horsemen lined the road, the lordly carriage swept along to the point of action, and the scene itself was worthy of the gathering. There were no fewer than 50 competitors; the work, on the whole, was extremely well executed. The ploughing was completed shortly after one o'clock, and the prizes were distributed in the field at half-past two. A circle of carriages, horsemen, and pedestrians was formed in front of the Committee's tent, in which the ploughmen were collected, and the Noble President, the Duke of Richmond, ascended a waggon to present the rewards.

The Noble Duke, addressing the ploughmen, said—Though I am not connected with this county, either as a proprietor or a resident, yet the gentlemen and the farmers have deputed to me the gratifying task of giving you the rewards of industry and skill. It is most gratifying to me to find them thus come forward to reward the honest and meritorious labourers; it shows that they have a good opinion of you, and I have no doubt it will be your endeavour to deserve it. (*Cheers.*) I need not tell you what advantage it is that the land-owners, the land-occupiers, and the labourers of the country, should be all in close union one with another—(*cheers*)—and so long as that continues to exist this country will be flourishing, independent, and free, because it will deserve to be so. (*Cheers.*) Now I have great gratification in rewarding you, and in particular two young men, brothers, who have gained premiums, and bear excellent characters, which shows that they have been well brought up, and that they not only obey the laws of their country, but do not forget the great laws of their Creator. (*Cheers.*) I understand it is not the first premium one of them has gained, and I am quite sure I only express the feelings of those by whom I am surrounded when I say I hope it may not be the last; for we wish to encourage the labourers when they are deserving of it. (*Cheers.*)

The following prizes were then distributed:—

FIRST CLASS—SWING PLOUGHS.

1st prize, 5*l.*—to William Sutton, Kelvedon, Essex; in the employ of Lord Western.—Used Bentall's plough.

THE DUKE OF RICHMOND.—As I am not a Cambridge man, I am not unwilling to see this prize go into

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Essex; but I dare say some gentlemen would have liked to keep it here.

2nd, 4l.—John Stammers, Coggeshall, Essex; in the employ of Mr. W. F. Hobbs.—Hayward's plough.

3rd, 3l.—George Thorn, Chesterton; in the employ of Mr. Warboy.

4th, 2l.—William Snow, of Radwinter, Essex; in the employ of Mr. Giblin.

5th, 1l.—George Bull, of Earl's Colne, Essex; in the employ of Mr. Hobbs, sen.

SECOND CLASS—WHEEL PLOUGHS.

1st prize, 5l.—James Scovell, of Babraham, in the employ of Mr. S. Webb. Used Ransome's plough.

2nd, 4l.—John Salmon, of West Wrating, in the employ of Mr. E. Frost.

3rd, 3l.—James Stiff, of Babraham, in the employ of Mr. Jonas Webb.

4th, 2l.—Edward Hall, Arkesden, in the employ of Mr. E. Hurrell.

5th, 1l.—Henry Beasteat, West Wrating, in the employ of Mr. Teverson.

The Judges in this class recommended 1l. to John Sharman, and 1l. to James Greenhill.

THIRD CLASS, BOYS—SWING PLOUGHS.

1st prize, 4l.—Daniel Smart, Saffron Walden, in the employ of Mr. M. Nockolds.

2nd, 3l.—George Giblin, Chisball, in the employ of Mr. Warboy.

3rd, 2l.—C. Marshall, Saffron Walden, in the employ of Mr. Clark.

FOURTH CLASS, BOYS—WHEEL PLOUGHS.

1st prize, 4l.—Thomas Salmon, West Wrating, in the employ of Mr. Thomas Frost.

2nd, 3l.—J. Smith, Littlebury, in the employ of Mr. Clayden.

3rd, 1l.—This was awarded to a youth named Poulter, only 15 years of age.

Each unsuccessful competitor received 2s. 6d.

The Duke of Richmond said if ever he had the good fortune to meet them again, he trusted he should find they had not forgotten what had occurred that day, and that they would take it as a proof that their masters were anxious for their welfare and comfort. (*Cheers.*)

Mr. BEWSHER then proposed three cheers for the Duke of Richmond, which were heartily given.

The Duke of Richmond returned thanks, and said this was not the first time he had found an assembly too grateful to persons enjoying the privilege of his station for what little they could do; but he assured them he should always do his utmost to join together all classes of society. (*Cheers.*)

The Marquis of Downshire said, before the assembly separated, there was a meritorious class of men whom the Committee were desirous should be marked with proper respect—a class the most valuable, to which they the agriculturists of the three kingdoms were greatly indebted—the labouring class, the peasantry of England, the men who ploughed their land to enable them to reap the fruits of it. (*Cheers.*) He proposed three cheers for the labourers of England.

Three hearty cheers were given, and the company separated.

Throughout the morning, while the ploughing was going on, a number of improved agricultural implements and machines were in operation in a field adjoining, and excited considerable attention from the gentlemen and agriculturists present: of them we may enumerate thrashing machines for horse and manual labour, by Messrs. Ransome, of Ipswich, and

Garrett, of Leiston; horse and hand chaff-cutters, by the same makers; Salter's winnowing machine; a Rack-leath subsoil plough, made by Messrs. Ransome; a light land subsoil plough by the same makers; an improved subsoil plough, made under the direction of Mr. W. H. Hobbs, of Marks Hall, and a Deanston subsoil plough; drop drills, by W. Grounsell, of Louth, and Hornsby, of Spilaby; single and double ploughs, by Palmer, of Reading; Biddell's Scarifier, and harrow; a curious machine for dibbling, by Mr. Wedlake, of Horchurch and an American plough, presented by His Grace the Duke of Richmond to the Royal Agricultural Society, &c.

The agricultural implements and machines which were tried of the Messrs. Ransome's manufacture, were subsoil and cleaning ploughs, a light double furrow plough, and two cultivators, the one Biddell's scarifier, the other Biddell's extirpating harrow. These implements severally performed their work well, and it was not a little amusing to observe the eagerness of interest with which they were severally followed by gentlemen on foot, and near to them, so much so that the workmen were obliged now and then to stop to clear the way for getting on. The makers brought with them some good practical working hands who were quite "at home" in the art of using these implements. The subsoiling was performed up and down the field, at different depths, varying from 12 to 18 inches below the surface, according as the draught chain was regulated. The Messrs. Ransome's also brought into competition with other makers, their four horse thrashing machine; and with this they thrashed out sixty-one bushels and three quarters of a peck of wheat, in the most complete manner, within one hour. Neither their two horse machine, or any other two horse machine was tried, nor were any of the hand thrashing machines tried against time, except one made by the before-mentioned gentlemen; this was worked by six men, who thrashed five bushels of wheat in 15 minutes. Several chaff engines were also tried of Messrs. Ransome's make, and quite astonished the observers, from the admirable manner with which they performed their work, and the good style of workmanship, particularly one on a large scale worked by two horses, for which their partner, Charles May, has just obtained a patent.

As soon as the prizes to the ploughmen were distributed, the company returned to Cambridge, where, at three o'clock p. m. the prize essays were read to a numerous assembly in the Law Schools, under the Public Library. The following are the titles of the essays:—

On the Storing of Turnips, by Mr. W. E. Geach, of Gywardreath, Lostwithiel, Cornwall, for which a premium of ten sovereigns had been awarded.

On the Admixture of Soils, by Mr. W. Linton, of Sheriff Hutton, near York, for which 20 sovereigns had been awarded.

On Early Spring Feed, by Mr. M. M. Milburn, of Thorpfield, near Thirsk, Yorkshire, for which 20 sovereigns had been awarded.

On Plantations, by Mr. Cuthbert W. Johnson, of Gray's Inn, which had obtained the gold medal.

On Gypsum as a Manure, by the same, for which a prize of ten sovereigns had been given.

Soon after five o'clock upwards of 400 noblemen and gentlemen sat down to a dinner provided in the magnificent dining hall of Trinity College, which had been kindly offered to the Council of the Royal Agricultural Society by the Masters and Fellows of Trinity.

There were eight tables, at which covers were laid

for 420. The dinner was served by the cooks of Trinity College, who provided one of the most sumptuous entertainments we ever partook of on a public occasion.

The tables were profusely ornamented with emblematical devices. On some of the tables richly gilt vases containing agricultural produce and beautifully executed models of animals; a bronzed statue of Edward III., one of the founders of the college, the pedestal of which was surrounded with martial emblems; a plaster model of the conduit in the great court of the college, and a statue of Henry VIII. (also a founder of the college), with figures of Piety and Learning seated at the base of the pedestal. These were executed by Mr Rennie of London.

Soon after five o'clock the Duke of Richmond entered the hall accompanied by Earl Spencer, the Marquis of Northampton, and the Duke of Rutland. Shortly afterwards the Vice-Chancellor entered, accompanied by Sir Robert Peel and Sir James Graham.

His Grace the Duke of Richmond presided, sitting at the centre of table A. 1. Earl Spencer acted as Vice-President, and sat at the extremity of table D.

Amongst the company we observed the following:
Dukes.—Richmond, Bedford, Rutland, St. Alban's, Buckingham.

Marquises.—Northampton, Salisbury, and Downshire.

Earls.—Spencer, Lucan, Chichester, Ilchester, Hardwick, Sandwich, Delaware, Stradbroke, Falmouth, Lincoln.

Viscounts.—Bridport, Sidney, and Neville.

Barons.—Lyttleton, Montegle, Hatherton, Wodehouse, and Braybrooke.

Lords.—C. Manners Crofton, Western, Braybrooke, Hatherton, Ashburton, Sondes, Dacre, Littleton, Lynedoch, Wodehouse.

Baronets.—Robert Peel, James Graham, Alexander Grant, Geo. Seymour, Thomas Gooch, Charles Morgan, Charles Burrell, T. Dyke Acland.

A Deputation from the Highland Society of Scotland, headed by Mr. P. Stewart, of Banffshire.

Ambassadors.—Hon. Andrew Stevenson, American ambassador to the Court of St. James's, the Hon. Virgil Maxie, ambassador to the Court of Brussels.

The celebrated French agriculturist, Count De Gourcy, and M. de Hamel, Councillor of State to the Emperor of Russia.

Hon. and Rev..—G. Neville Grenville, and R. Clive.

Sirs.—John Palmer, Robert Price, C. Brook Vere, John Johnstone, C. M. Clarke, Charles Lemon, H. Hoskins, C. Morgan, and W. Folkes.

Colonels.—Rushbrooke, Le Couteur, Pemberton.

The Very Rev. the Dean of Ely, the Vice-Chancellor.

Rev. Dr. French.

Professors.—Clarke, Whewell, Buckland, D.D., Cumming, Henslow, F. Worsley (Master of Downing).

Reverends.—Algernon Payton, W. Carus, Gurdon, Cheret, E. R. Benyon, D. Gwilt, J. Brown (Vice-Master of Trinity), T. Curtis, P. Gurdon, E. Fisher, — Rham, Bennett, J. Barker, C. Penrice, Leyson, and Penoyres.

Messrs..—J. W. Childers, M.P., R. J. Eaton, M.P., R. J. Townley, M.P., G. Pryme, M.P., E. Ashford Sanford, M.P., T. Hurst, M.P., W. Bagge, M.P., Abel Smith, M.P., J. Bennett, M.P., Bacon, Babington, P. Beales, G. Beauchamp, Barnett, Bavery, S. Bradfield, W. Bryant, Ratten, J. R. Barker, W. Booke, Bushfield, W. H. Cheere, B. Coldicott, J. Coates, Rakes Currie, Driver, J. J. Dobede, Eaton, Feere, J. Fryer, G. Fisher, T. A. Fisher, R.

Foster, jun. (mayor of Cambridge), E. Foster, J. N. Foster, J. E. Fordham, J. Poljambe, J. Grain, P. Grain, — Gurdon, Steed Girdleston, W. G. Hayter, M.P., H. Headly, G. H. Harris, Hillyard, W. P. Isaacson, G. Jenyns, W. Layton, G. Legard, Henry Long, Walter Long, T. Mortlock (High Sheriff of Cambridgeshire and Huntingdonshire), Francis Pym, Paris, P. Pusey, M.P., T. Page, C. Pemberton, G. Penrice, J. B. Rooper, W. Shaw, Jos. Tharpe, C. Towers, Sydney Tharpe, H. Thompson, H. S. Waddington, Tycho Wing, James Witt, and — Yorke, &c., &c.

The DUKE OF RICHMOND rose and said—My Lord Spencer, my Lords, and Gentlemen, I wish to propose the health of "The Queen," and may she long live happy and prosperous amongst us. (*Three times three.*)

The Duke of RICHMOND—I now rise to propose the health of one who has but lately come to reside amongst us, and who, during the short time he has yet spent in the country, has proved that he has the real welfare and prosperity of the people of England at heart—that this is in fact the country of his adoption, though not of his birth; and who the longer time he spent with us would (the noble President was sure) give the people of England continued occasion to manifest their gratitude for the devotion he showed their interests. He would give "Prince Albert," with three times three.

The Duke of RICHMOND then rose, and proceeded to say that he was about to propose a health, to which the hearts of all would respond with the deepest feelings of respect. He had but to mention the widowed Queen of our late revered Sovereign, with whose name he would join the surviving sons and daughters of that monarch (George III.) who in a peculiar manner had distinguished himself as the friend of agriculture, having no better pleasure than in going over his farm and personally inspecting the various processes which each returning season called into action, and in ministering with the hand of beneficence and power to the personal wants, and sympathising with the personal feelings of his dependents. He (the noble President) knew he could propose no health which would be drank with greater enthusiasm, by an assembly of farmers, than this. It was almost a personal appeal to the hearts of those present as the farmers of England, to call upon them to rise and drink with three times three the toast he had proposed. (*The toast was drank with immense acclamation.*)

The Duke of RICHMOND, on again rising, said that a want of gratitude, he was proud to say, had never been numbered among the faults of the farmers of England. The Society had incurred a deep debt of gratitude to the Master and Fellows of Trinity college, who had that day received them. Their lives were devoted to the education of the youths of the country. It was with pride that he could say that one of the greatest objects of the Society was identified with him—at least they wished to educate themselves. Nothing could tend more to the interests of the society than that system of a reciprocity of knowledge which such meetings as the present could not fail to induce. His (the Duke of Richmond's) early habits had not trained him to the practice of making long speeches, and for the present occasion the shortest he could utter would be surely sufficient to make the toast he proposed acceptable. He wished that it had been his lot to have been a member of such a society eight or ten years since, when he would have been better able to perform the arduous duties which were imposed upon him; and with the knowledge and information

he should then have had at command, he would have been more able to have done justice to his tenantry in introducing among them a better system of cultivation. For himself, however, it was too late to regret. There were present many who might take advantage of the benefits which this society must disseminate; and there were also many who, like himself, had children who would not be left to plead the excuse of ignorance to future generations. But the society, during the short time it had already been established, had done much. They were not to expect to reap their harvest before their seed was sown. They had done much, because their very organization had implanted in the minds of all, that indestructible tendency to improvement—that excitation to increased knowledge, which must progress, and could not retrograde. For their present accommodation, he would repeat that they owed a debt of gratitude to the Master and Fellows of the society within whose walls they were assembled; and to procure the warm acknowledgment of that feeling, he (the noble President) felt that he had only to mention their names to call forth the willing tribute which all were ready to pay. (The noble Duke concluded by proposing the health of the Master and Fellows of Trinity College with three times three, which was received with a loud burst of applause.)

The VICE-MASTER of Trinity College (the Rev. John Brown), said the unanimous kindness with which the toast of the noble President had been received, rendered him diffident when he rose in the name of the College to return his heartfelt thanks for their good wishes. That College might congratulate itself upon receiving into its walls a meeting convened to promote the best interests of the community. In such a meeting as the present there must always be something of enthusiasm, let it be assembled on any subject whatever; but the objects of the present were of a character especially calculated to draw out the best feelings in its favour. This society enlisted the aid of science to carry on the important pursuits it was designed to protect; and he trusted this meeting might originate the study of agriculture in the University, voluntarily added to the studies of those who came there to prepare themselves for the different avocations of life. (*Loud and enthusiastic cheers.*) He did not however wish it to be supposed that he thought agriculture would be left behind, when science was making such rapid progresses in every other department. In what related to the physiology of animals and the nature of soils, the labours of literary and scientific men would of necessity be productive of immense advantage to the practical farmer, but these labours must be disseminated in a simple form through the many districts of the land; and he was sure that not one of those men connected with the University of which he was a member, who had rendered their names famous for their scientific acquirements, but would feel proud that the studies of their retirement could be rendered subservient to the vital interests of so great a part of the community. (*Hear, hear.*) If such a professorship as that to which he had alluded should be established in this University, the results, he was sure, would be of such a character as would give the whole kingdom cause to be thankful for the institution of the society which had originated it. The pursuits of a University could not be alien from an institution designed to promote the increase of the prosperity, wealth, and comfort of the whole nation. The meeting of that day presented a striking contrast to those times mentioned by Columella (a Latin

author), when agriculture had neither teachers nor learners; it remained in a state of neglect and decay, which was permitted by Providence to be one of the principal causes of the ruin which shortly overtook that nation. Their fate was a warning to us how we trusted the staff of life out of our own hands. He would conclude by again expressing the deep sense of gratitude which he felt for the honour which had been conferred upon the college, by the manner in which the noble President had proposed, and the meeting received, the testimony the slight degree in which they had been enabled to be useful to the society.

The Marquis of NORTHAMPTON rose, and said that the toast which the noble President had proposed he had heard with the greatest satisfaction. The recollection of the benefits which he had in former days received from that College gave him still greater pleasure. The objects of this Society were of the utmost importance, not only to those immediately concerned, but to all who felt an interest in the welfare of their country. He was glad of the opportunity, as one of the members of that Society, of testifying the respect which he felt for the noble duke who presided on the present occasion. The President had truly said that in the virtue of gratitude the farmers of England had never yet been found deficient; but, should they not receive with the utmost demonstrations of sincere thankfulness the mention of the services of that noble personage, it might indeed be supposed they had ceased to be influenced by that feeling. The noble duke seemed placed by Providence in a situation peculiarly adapted for the position he had been selected to occupy, having estates both in England and the north of Scotland, having means at his command for trying the relative merits of the respective systems of agriculture pursued in both countries, and being thus qualified to judge of their comparative merits. It was quite true that agriculture as a scientific pursuit was still in its infancy, because it was only recently that meetings like the present had taken place. Agriculture, indeed, did not only embody one science, but he might say that it was a pursuit which to carry to perfection ought to combine a knowledge of all the sciences. It was important that the chemist should throw the light of his researches upon it—that the botanist should add his knowledge of the growth of the various plants which nature had given to the care of man—and, in a word, that philosophy of all descriptions should be united to enlarge the sphere of the labours of the farmer. Agriculture was indeed yet in infancy, but it required only that those whose lives were devoted to literature and study should combine to teach the farmer, and it would soon reach, if not to maturity, to a degree of perfection which it would be difficult to describe. He would not detain them longer than again to propose the name of his noble friend, whose views he was sure were such as to render the toast well calculated to call for the sincerest feelings of gratitude and pleasure. (*The toast was drunk with three times three and one cheer more, amidst the loudest acclamations.*)

The Duke of RICHMOND, in rising to return thanks, said that his noble friend had proposed his health in terms much too flattering, when applied to any merit which he could presume to take to himself. He had not, however, said too much when he declared that he had endeavoured to promote the interests of the agriculturists. He had done so, not because his own interests were involved in them, but because he felt that in the welfare of agriculture consisted the prosperity and welfare of the country.

It was, indeed, of great importance to him, but of still greater to his country, that agriculture should flourish, for when it flourished neither commerce nor manufactures stood still. He had promoted agriculture, not because he found himself a land-owner, but because he also was proud to say he was a farmer. He could not venture to call himself a practical one, but he knew that if the landowners did their duty to their tenants, they would perform their duty to their labourers. Thus were they bound together by one link in the chain of society. It was a union of classes which must ever be productive of the best interests of mankind; by such a union the whole country maintained its prosperity. United, they were the instruments of great good, they made themselves respected by other nations, and preserved themselves from foreign foes. The compliment which had been paid him he would not take to himself, but to his office: it was one he should ever feel proud to fill. The honour had been conferred upon him solely because he was placed at the head of the agricultural interest, to which office he had been appointed not as a matter of form, but selected owing to his good fortune in having (in conjunction with Lord Spencer) first proposed the organization of this Society. It was formed owing to a conversation which he had with that noble on the occasion of a Smithfield Cattle Show, when his lordship had suggested the utility which the foundation of such a society could not fail to produce. His noble friend had been in his county; he had seen the good effect which had resulted from the Highland Society. He could not gratify the meeting by stating which of the two obtained the pre-eminence; nor would he draw any invidious comparisons, but content himself by saying that he was sure that the members of this society would be received by their brethren in Scotland with the same feelings of hospitality as they had exercised towards himself. He would return, however, to the establishment of this Society. From the suggestions which had been thrown out between himself and his noble friend upon the occasion to which he had alluded, it had been established, and its establishment had been followed by the most triumphant success. At their first meeting last year at Oxford they had numbered 1200 members, but he now rejoiced to state that their numbers amounted to 3500. It had been repeatedly said that the Society could not continue to exist, unless supported by practical farmers;—they had met with that support. He would however take that opportunity of stating, that one important ingredient in their success consisted in farmers taking the trouble of communicating continually to the Council the results of the different experiments which they were in the habit of making. They were not a theoretical society, but their object was to reduce theory to practice. He would not be thought to depreciate the value of experiments, but would recommend the adoption of such improvements the success of which had been proved by the result. He begged to thank them again for the honour they had done him, and to express the gratification he felt at the successful prospects of the Society. (*The noble duke resumed his seat amidst great cheering.*)

His GRACE again rose and said that the lists had just been put into his hands, containing the award of the judges. It might be satisfactory to explain the rule which the judges observed; and especially so as some gentlemen for whom he (the Duke) had a high respect did not, he believed, think it in all respects right and proper. When Lord Spencer acted, on a former occasion, as one of the judges, numbers were made use of that, when they went up to the pen, they should not

be aware of the name of the owner of the animals therein. But they since found that they should place full confidence in the judges. They had this difficulty, amongst others, in the old system to encounter, that the shepherd who was with his children (*laughter*), watching them with a jealous care, was invariably known to some one or other of the judges. This did not exist in the new system, which excluded every person connected with the animals. In all such matters absolute perfection could not be accomplished or hoped for. In this world it was in carrying out any undertaking but a choice of difficulties, and his experience through a long life had always found it so. The fullest confidence of the society in the judges was, therefore, deemed necessary to the best adjudication, and they were selected in a manner calculated to inspire confidence.

Earl SPENCER here said that the judges themselves did not at that moment know the names of the successful candidates.

The Duke of RICHMOND then read the award of the judges as follows:—

FIRST CLASS.—*For Short Horned Cattle.*

Best Bull—Mr. W. Paul, of Pentney, Norfolk. . . 30 sovs.
 Best Yearling Bull—Mr. R. N. Jaques, of Richmond, Yorkshire 15 sovs.
 Best Cow, in milk—Mr. Thos. Bates. 15 sovs.
 Best In-Calf Heifer—Right Hon. Charles Arbuthnot 15 sovs.
 Best Yearling Heifer—Mr. R. N. Jaques, of Richmond, Yorkshire 10 sovs.
 Best Bull Calf—Mr. Thomas Bates 10 sovs.

SECOND CLASS.—*Hampshire Cattle.*

Best Bull—The Duke of Bedford 30 sovs.
 Best Cow, in milk—Sir Hungerford Hoskyns, Bart. 15 sovs.
 Best In-Calf Heifer—Sir Hungerford Hoskyns, Bart. 15 sovs.
 Best Yearling Heifer—Mr. Francis Hewer, of Hereford 15 sovs.

THIRD CLASS. *Devon Cattle.*

BEST BULL CALF.

Best Bull—Mr. Porter, of Hembury Fort . . . 30 sovs.
 Yearling Bull—The Duke of Norfolk 15 sovs.
 Cow, in milk—Mr. T. Umbers, of Wappenburg, Warwickshire 15 sovs.
 In-Calf Heifer—Mr. Turner, of Barton, near Exeter 15 sovs.
 Yearling Heifer—Mr. Turner 10 sovs.
 Bull Calf—Mr. T. Stephens, of White Lackington, Staffordshire 10 sovs.

FOURTH CLASS.—*For Cattle not qualified for either of the above Classes.*

Best Bull—Mr. Putland, of West Firs, Sussex, for his Sussex Bull 30 sovs.
 Best Yearling Bull—Sir Edward Kerrison, Bart., of Oakley Park, Suffolk, for his Yearling Suffolk Bull 15 sovs.
 Cow, in milk—Mr. Putland, for his Sussex Cow . . . 15 sovs.
 In-Calf Heifer—Mr. Putland, for his Sussex Heifer 15 sovs.
 Yearling Heifer—Mr. Putland, for his Sussex Yearling Heifer 10 sovs.
 Bull Calf—Mr. Putland, for his Sussex Bull Calf 10 sovs.

FIFTH CLASS.—*Horses.*

Judges:—Mr. J. Clarke, Barnaby Moor; Mr. C. Bowman, Greatford.

The best Cart Stallion, Mr. John Bell, of Wellen-le-Wold, Lincolnshire, for his 12 years old cart stallion, bred by Mr. J. Adams, of Landbeach, Cambridgeshire 30 sovs.
 The best Cart Mare and Foal, to Mr. T. N. Catlin, of Chillesford, Suffolk, for his cart mare and foal, bred by Mr. Cooper, of Friston, Suffolk 15 sovs.
 The best Stallion for breeding hunters, carriage.

horses, or roadsters, which shall have served mares during the season of 1840, at a price not exceeding 3*l.* each, to Mr. John Reynolds, of Wisbeach, Cambridgeshire, for his eight-year-old stallion, bred by Mr. J. O. Taylor, of Fleixton 30 sovs.

SIXTH CLASS.—For Leicester Sheep.

Shearling Ram—Mr. Samuel Bennett, the First Prize 30 sovs.
Second Prize—Mr. Samuel Bennett 10 sovs.
All-age Ram—Mr. Pawlett, of Tinwell, Rutland 30 sovs.
Five Ewes and Lambs—Mr. Inskip, of Marston, Beds 10 sovs.
Shearling Ewes—Mr. Wm. Pawlett, of Barnack, Northamptonshire, for his 5 Shearling Ewes 10 sovs.

SEVENTH CLASS.—Southdown and Short-woolled Sheep.

Shearling Ram—First Prize, the Duke of Richmond, for his Southdown Shearling Ram. 30 sovs.
Second Prize—Mr. Crisp, of Gedgrave, Suffolk, for his Southdown Shearling Ram 10 sovs.
All-aged Ram—Mr. Crisp, for his three-year-old Southdown Ram 30 sovs.
Five Ewes with their Lambs—Mr. Jonas Webb, of Babraham, for his five Southdown Ewes and Lambs 10 sovs.
Five Shearling Ewes—Mr. Jonas Webb, for his five Southdown Shearling Ewes 10 sovs.

EIGHTH CLASS.—Long-woolled Sheep.

Shearling Ram—Mr. C. Large, of Broadwell, Oxfordshire, for his long-woolled Shearling Ram 30 sovs.
Second Prize—Mr. John Haradine, of Needingworth, Hunts, for his Long-woolled Shearling Ram 10 sovs.
All-age Rams—Mr. Charles Large, of Broadwell, Oxon, for his New Oxfordshire Long-woolled Ram 30 sovs.
Five Ewes and Lambs—Rev. James Linton, of Hemingford Grey, for his five Lincoln and Leicester Ewes and Lambs 10 sovs.
Five Shearling Ewes—Mr. E. Smith, of Charlbury, Oxon, for his Improved Oxfordshire Shearling Ewes 10 sovs.

CLASS NINE.—For Pigs.

Best Boar—Mr. Barnard, M.P., of Gosfield Hall, Essex, for his one year and four months old Boar.—This Boar was from the stock of Mr. W. T. Hobbs, who won the next prize... 10 sovs.
Best Sow—Mr. W. F. Hobbs, of Marks Hall, Essex, for his three-year-old Sow 5 sovs.
Three Best Pigs—Mr. G. Kirkby, of Eppinbury, Essex, for his thirty-six-weeks old Pigs 10 sovs.

The Noble PRESIDENT stated, that the Prizes for Horses would not be declared until the next day.

His GRACE then said, before he proceeded farther he should propose "the health of Mr. Putland," who had been so successful a candidate, and whom he was proud to call a Sussex man.

The Noble VICE-PRESIDENT proposed "The healths of the successful candidates."

The Duke of RICHMOND said he felt proud of being enabled to carry back the prize for the best Southdown ram into Sussex. As president he had felt it his duty to send his best stock; he had also forwarded some ewes, which were not successful. He, however, felt additional satisfaction in receiving his prize, because if they read the journal of the society's proceedings it would be found that his noble friend (Lord Spencer) considered the male animal by far the most important. (*Hear, and laughter.*) He suspected the county of Sussex would not long be able to retain the first prize, unless the breeders continued very active, for this year there had been no less than fifty-four other competitors. In justice to Lord Spencer, he thought it right to state that his noble friend, as all would readily believe, could have sent several animals for the different classes from

his splendid collection of stock, but he felt that he could be of more real service to the society by acting as a steward of the cattle-yard, and his high sense of honour, therefore, dictated to him that as such he could not be an exhibitor. (*Cheers.*) He should soon have to propose the health of his noble friend, and he was sure that in every assemblage of farmers his name would be received with three British cheers. (*Applause.*)

The Duke of RICHMOND then proposed "The health of the successful exhibitors of wheat and pigs."

Colonel LE COUTEUR said his Grace the Chairman had turned his sword into a ploughshare, and he (Colonel Le Couteur) had humbly followed his example. He was one of those who thought that a retired soldier need not be entirely put upon the shelf, but might become useful in other spheres. As to the growth of wheat, he might observe that he had long been of opinion that a pure sample would be the one most likely to ensure a good crop; he had been told that it would be impossible to obtain in England a seed and crop equal to the Polish mixed corn, but as soon as he began to plant he was convinced of the error. He was satisfied that the farmers of this country could grow as pure and excellent corn as that imported, the principal requisite being a proper selection for the soil planted. He was much surprised at having obtained the prize; his sample was grown from a single grain, and he had now been seven years rearing it; consequently much patience and care had been required; and that circumstance suggested to him the justice and propriety of the society having an experimental farm. With individuals at least three years was necessary to complete any experiments, but with a farm the same results might be obtained in one year. If not out of order, he would suggest that a fund be established for that purpose by a subscription of 1*l.* a year.

The Duke of RICHMOND said it was impossible for any one present not to be impressed with what had fallen from the gentleman who had just addressed them. With respect to his hint respecting the experimental farm, he thought that this great country ought to have one, but the society was an infant one, and it could not attempt too many things at once. There were many, and amongst the number his Grace himself, who would be happy, when the period arrived for making the experiment, to subscribe largely towards it. But their object would be to enable the farmers of England to send their children to it for their education, and in this he would include moral and religious instruction. He hoped that next year this important subject would be discussed at the meeting of the society, which would be held in a great commercial place, where, he hoped, that the manufacturers of the country would receive them in the same spirit of friendship as they (the farmers) would receive them were they to come amongst them. (*Cheers.*) Those who wished to stir up enmity and jealousy between both these great classes were not the friends of the country. (*Loud cheers.*) The noble President then proposed "The health of Earl Spencer," which was received with tremendous cheering.

Earl SPENCER said he had been called upon to give his opinion respecting the growth of wheat; that, however, was not exactly the portion of agricultural pursuit to which he most particularly directed his attention, because he had thought much more of the breeding and feeding of stock. He might, however, observe generally that science had not been applied to agriculture as it ought to have been. He would say let every farmer try experiments where he thought there was ground for any improvement, and he would be sure thereby to benefit his country and himself. (*Hear, hear.*) Great care should of course be taken in the selection of seed wheat, as some soils suited one description and some another. It was a common practice to take from a light land for sowing on a heavy soil, and the contrary. It would certainly be a fair experiment to try whether it would not be as well to take the seed from land similar to that upon which it was to be sown. If a mixed variety of seed was sown an indifferent crop must be the result, because one portion would do much better than the other. He would recommend the trial

of various experiments by sowing different samples on a variety of soils.

The Duke of Richmond then mentioned the name of Professor Henslow in terms of warm praise, as a gentleman capable of imparting most valuable information to the meeting; and his Grace expressed a hope that the learned professor would favour them with his opinion on the subject which they all had at heart.

Professor Henslow said he could not respond to the appeal which was made to him without great diffidence, nor could he venture to suggest to those who had practical knowledge on the subject anything respecting the growth of wheat—a subject on which he himself possessed no practical knowledge whatever. All that he knew respecting this plant related chiefly to those laws of vegetation by which the growth of every plant was regulated, and to enter into minute details respecting that complex problem would require him to trespass too long upon their time, and would possess too much the character of a lecture. Indeed, he could hardly hope to do justice to such a subject without detaining them in their seats for a week at least. But, having been called upon, he felt that he could not sit down without mentioning one piece of advice, which, if it were acted upon, would be of the greatest importance in furnishing scientific inquirers with a mass of material from which they might be enabled to draw accurate inferences, respecting those laws of vegetation of which at present so little was satisfactorily known. In the present state of science all England might be considered as one great experimental farm, and the daily operations of the agriculturists as so many experiments. If persons would only register the results they obtained in all cases, at the same time stating a variety of attendant circumstances bearing more or less directly on those results—such, for instance, as the state of the weather, of the wind, and numerous other minutiae which need not be dwelt upon—then indeed we might hope to be gradually enabled to understand more of those great laws of vegetation by which the growth of plants was regulated. He had passed many years of his life within the walls of this university in studying and lecturing upon this subject, so far as it was at present understood; and now that he was living in the country, he had commenced certain experiments, which he hoped, if he should live to see the result, might assist in furthering our knowledge of those laws; and nothing would give him greater pleasure than detailing such additional information if he ever obtained it; but he was afraid to trust himself on the present occasion with attempting any general exposition of what was hitherto known and recorded respecting the laws of vegetation, for the reason already stated.

The Duke of Richmond next introduced Professor Buckland, of Oxford, to the meeting, and reminded them of the rich treat which he afforded the society last year. He hoped that he would permit him in the name of the farmers of England to call on him on this occasion for some farther valuable information, and, if it related to the cultivation of wheat, he would say for himself and his brother agriculturists that they should feel the more indebted.

Dr. Buckland, whose appearance was hailed with loud cheering, said the kind manner in which his name had been received made him cease to regret the absence of his friend and colleague, Professor Sedgwick, who would have addressed them more eloquently than himself, and most satisfactorily proved that the farmers were all greatly indebted to the science of geology. (*Hear, hear.*) A large portion of the company might perhaps have seen in the passage to the committee-room at the University Arms, that day, a very large map decorated with various colours, which to some would no doubt appear unintelligible, though to a great number it was now no longer so. They were all of the greatest importance to the agriculturist, each stripe showing a different soil, and exhibiting the various strata of earthly matter which formed portions of this their native country. (*Hear.*) A suggestion had been made of having an experimental farm; he must say that he thought that would be of very little general utility. He would suggest that there should be at least twelve farms, not,

however, such as would consume the funds of the society, but to be established by noblemen and gentlemen, who could place them in the hands of able and practical men, by whom the most valuable information could be conveyed to geologists. He was of opinion that a committee should be appointed for the purpose of making selections and drawing up a general system of experiments, and that they should occasionally make reports of the result of experiments upon different soils—a plan from which the most valuable results might be anticipated, for no geologist ever walked over a farm without discovering different formations of earth, all of them probably being of much importance. The Learned Professor then briefly referred to the advantage of an admixture of different soils, such as chalk and clay with sand, by which many lands might be brought into excellent culture, and regretted that time would not allow him to refer to many other interesting topics. The various suggestions, however, which could be made would only be carried out through the aid of a committee, which he hoped to see very speedily formed. (*Cheers.*)

The Duke of Richmond proposed "The health of Mr. Maxie, the Minister of the United States to the Court of Belgium." It was the wish and endeavour of that gentleman, who then honoured them with his presence, to seek and obtain information on all subjects like that which called them together, the object of which was the prosperity of the human race. The country he represented in days gone by was a province of England; it was now an independent nation. They had been at war, and now they were in peaceful relation to each other, united by kindred sympathies and interests. (*Cheers.*) Peace was dear to the heart of the farmer; in promoting his interests he promoted the dearest interests of his country, and these he pursued without wishing for or requiring the inferiority or the ruin of others. His Grace expressed a hope that we should long live in peace and the cultivation of good will with a people who had sprung from Great Britain, and of whom she might be justly proud.

Mr. MAXIE was received with great cheering. He said he felt that it would be the highest presumption should he take to himself that honour which, in proposing his name to that assembly, he considered was meant for the country of which he was a native. Individually he felt the highest pleasure in being present at a meeting assembled for the furtherance of the noble objects which they had in view; and he also thought it no slight honour to be there, the representative of a country which was bound with them by the mutual wish to extend the interests of agriculture. His country deserved the esteem of the society, not merely because her institutions, language, laws, and customs were those of England, but more especially because they were the descendants—children of England, who had turned a savage and desolate wilderness into a civilized nation, and had vindicated their claim to be ranked among those benefactors to the human race of which England held the highest place. The objects of that society were to promote the greatest interests of the country. Agriculture was the greatest instrument for the diffusion of the blessings of civilization; and though England was the greatest nation on the earth for commerce and manufactures, her agriculture formed her greatest glory. (*Loud cheering.*) He might say that manufactures formed the Corinthian capital of the column of her glory, of which commerce was the shaft, but agriculture the solid base which supported the whole. How important a part of the population of this country the agriculturists formed might be ascertained from the fact that the returns of the income tax furnished; two-thirds of that tax were paid by them. Still nobler purposes were carried forward under its influence. Civilization was promoted, the welfare, both moral and physical, of the people enlarged, and that force of mind, without which all other advantages were nothing, increased. He would repeat how much he was indebted to those who had procured to him the pleasure of being present that day, and the high sense he entertained of the honour done him by the Noble Duke, to whom he begged leave personally to express his profound acknowledgements. He could only conclude with the hope that the two

countries so nearly connected in sympathy might ever continue in the exchange of a contest of which should do the other the greatest good, and again never recur to that where the only object was to do the other the greatest harm. Might peace and good-will reign between them, and might they be united in feeling, in happiness, and in glory. (*Loud cheers.*)

MR. WREB HALL returned thanks. Though second to no man in respect to the constituted authorities, he would never shrink from claiming the just and fair rights of his class. The English tenant who provided capital for the cultivation of the landowners' estates, had a right to stand on the footing of independence. In the same manner he was prepared to yield to the labourer, as the weaker party in his transactions with the farmer, his just rights. There were some of the statements of the learned Professors which he could not think calculated, at present, to yield the farmers that great practical good which they might seem, at first sight to offer. Had he heard the speech of Professor Buckland, at Oxford, he should have been tempted to object to some of his positions, particularly when he stated that fertile lands might almost be compounded by the mixture of soils, leaving out of consideration that grand component, manure. He had since corresponded with the Rev. Gentleman, and he was glad to find that Mr. Morton, who was carrying on experiments with manures, was of the same opinion with himself. He exhorted the farmers not to neglect the collection of the utmost quantity of manure, at the same time that they availed themselves of those solid improvements which science and practice might discover.

The Duke of RICHMOND rose to propose the last toast which he should call upon them to drink that evening, and in appropriate terms introduced the health of the "Tenantry of England," which was drunk with three times three.

The Duke of RICHMOND said he must call upon them to drink one other toast before they separated, and proposed "The health of the Vice-Chancellor."

The VICE-CHANCELLOR (the Rev. Dr. Tatham) returned thanks, and the meeting separated.

DINNER ON WEDNESDAY IN THE GREAT DINING HALL ERECTED IN DOWNING COLLEGE.

At four o'clock, the company had mostly arrived, and the hall presented a truly animated appearance, crowded in every part with eager and gratified guests. There were two thousand six hundred and fifty persons present. At a few minutes after four o'clock the Duke of Richmond took the chair, and was received with much applause, as were many of the noble and distinguished guests who accompanied him, especially the Duke of Buckingham, the Duke of Rutland, Sir Robert Peel, Sir James Graham, &c.

The noble Chairman was supported on the right by the Hon. and Rev. G. N. Grenville, Master of Magdalen College, the Duke of St. Albans, the Duke of Buckingham and Chandos, Sir J. Graham, Bart., M. P., the Marquis of Downshire, Professor Henslowe, &c. On the left of the noble chairman were the Duke of Rutland, Mr. Stevenson, the American Ambassador, Sir Robt. Peel, Bart., M. P., Professor Buckland, the Marquis of Northampton, the Rev. Dr. Worsley, Master of Downing, the Earl of Hardwicke, Lord Charles Manners, Visct. Bridport, Earl Bathurst, &c. Among the more distinguished guests on the platform were Lord Lytton, Lord Falmouth, Mr. Maxie, the American Ambassador at Brussels, the Earl of Lucan, J. Webb, Esq., the Marquis of Salisbury, the Hon.

Charles H. Manners Sutton, Earl Chichester, Thos. Page, Esq. of Ely, P. H. Frere, Esq., J. W. Childers, Esq., M. P., E. A. Sandford, Esq., M. P., Professor Whewell, Lord Dacre, Lord Montague, Dr. Prince, Master of Jesus College, Colonel Rushbrooke, M. P., Sir Alex. Grant, M. P., Richard Foster, Esq., jun., Mayor of Cambridge, &c., &c.

The dinner having been concluded,

Grace was sung by the choristers of the University and Ely, after which due justice having been done to the viands, "Non nobis Domine," was also performed by them.

The Duke of RICHMOND said he was about to propose to their notice the name of their illustrious patroness,—the Queen. (*Great Cheering.*) He well knew, the loyalty and devoted attachment of the farmers of England had been tried on many and various occasions. Their attachment to their country and their loyalty to their Sovereign, had been often proved at the expense of their blood. Any further appeal to them on the present occasion, would, he felt, be almost an insult. It was unnecessary to say more than to mention the name of Her to whom the hearts of the people of England were so strongly bound; might, under the blessings of Providence, her reign be long and happy, and might she long continue to enjoy that domestic felicity which was her present lot. He called on them to rise and drink health and happiness to their Queen. On his grace concluding the whole of the vast assembly rose up and with loud and enthusiastic cheering, drank the toast which had been proposed. After which "God save the Queen," was sung by the University choir, the whole party joining in the song.

The PRESIDENT again rose and said, he had no doubt of the reception that would be given to the next toast which he had the honour to propose—"The health of that young and illustrious Prince who had gained the affections of our beloved Queen." Since that prince had come amongst us, he had shown every wish to be of service to the country of his adoption (*loud and long-continued cheers marked the reception of the toast.*)

The noble PRESIDENT then proposed—"The health of the Queen Dowager and the rest of the Royal Family" (*continued cheering.*)

The noble PRESIDENT then called on Sir Robert Peel to propose the next toast, "Success to the English Agricultural Society."

The RIGHT HONOURABLE BARONET rose, in the midst of a tumult of applause, which continued for some minutes, on the subsiding of which he said, that it would be affectation in him to mistake or misunderstand those demonstrations of esteem and personal good-will, which induced, or rather compelled, him to pause a moment in the execution of that duty which had been delegated to him by their noble president. When he surveyed this imposing, he had almost said this awful, scene—when he recollected the purpose for which they were met—when he thought of the wide area from which they were assembled, and the great interests which they represented—when he remembered the class to which, mainly, they belonged, and what had been the conduct, and still was the character, of that class—when he called to mind their moderation in prosperity, their patience and fortitude in adversity, their cheerful obedience to, or he should rather say, their zealous co-operation with, the laws, and their tried fidelity and loyalty to their Sovereign—when he thought upon all these things, however imperfect the acknowledg-

ment might be, they would believe that he did deeply, and would permanently, feel the distinction which the good opinion of such a body conferred upon a public man. It had been assigned to him, by those who had the conduct of the arrangements of the meeting, to propose the toast which had the most special reference to the occasion of that festival, and which, if he mistook not, would be in perfect unison with the feelings of that great assembly. That toast would convey an earnest wish that the future progress of this society might be as satisfactory as the past—that every succeeding meeting might exhibit proofs of improvement caused by its instrumentality—might show an increase in their numbers, and, by that increase the possession of extended means of public usefulness (*cheers*). It was, perhaps, to be regretted that this toast had not been assigned to some one more practically versed in agriculture than he could pretend to be, but there might be something to make up for this in the deep interest he felt in the prosperity of the land, and the fact that he had been present at the birth of the society—that he had most cheerfully and zealously co-operated with his noble friend, Earl Spencer, in laying the foundations of this important association. He well remembered when they met with members in numbers few, and with some forebodings of failure; but when he (Sir Robert Peel) obtained as a fundamental principle of the institution, that all party feelings should be excluded, he felt confident that they must, in the end, be successful (*long-continued cheering*); and he thought he could refer to the proceedings of the day as proofs that his predictions had not been falsified. He should now make use of his public character, only to exhort those whom he addressed, to that which was the primary principle of the society, and essential to its success, and to entreat them that they would, by the influence of that public opinion they were so well qualified to guide, induce others who might have been engaged in party warfare, to deposit at the threshold of this temple of peace, those weapons which might be fitly used in political conflicts, and which he himself had very recently wielded (*tremendous applause*). It would be superfluous in him to dilate on the benefits which this society must confer upon agriculture. To do this, did not require any great amount of practical knowledge. Could any one have attended the show held not very far from these walls, without feeling convinced that had the whole body of farmers in England seen the exhibition of implements and stock there made, they would have deposited at that door a thousand hitherto cherished prejudices? They would have felt convinced of the benefits which science confers on agriculture, and have laid aside the not unnatural opinion that the instruments and means which their forefathers had used were the best which they could at this time employ (*cheers*). He would leave to others the task of dilating on these and similar benefits of the society. He, as a public man, was fain to contemplate other results springing from the exertions of such a body. He thought there would be, as in almost all cases there was, a useful combination of physical and moral good, not merely leading to the fulfilment of the divine command, "increase and multiply." He thought they were at once scattering plenty over a smiling land, and extending the influence of kindness and kindly feeling around—that they were, so to speak, ploughing up the sub-soil of feelings and affections (*applause*), exposing

what would otherwise have remained barren and inert to the influence of social converse and social intercourse; that, in a word, they were sowing upon earth the seeds of "peace and good will towards men" (*cheers*). He believed, moreover, that this institution had a tendency to encourage the landowner to apply himself to a noble and dignified relaxation, full of interest in itself, and fraught with advantage to his country, to teach him the full value of scientific acquirements, and the truth that knowledge was not only power, but wealth also—that in knowledge resided an influence equal to that of riches, of birth, or of station (*cheers*). Further, he believed, it had tendency to keep the landed proprietor at home: to give him an interest in country pursuits, which would induce him to remain the centre and support of those amongst whom he moved, and who depended on him—that it would enable him to resist the temptation to leave his home which the facilities of locomotion furnished. It would also, he thought, strengthen and confirm the connection which united the landed proprietor with the yeomanry, and both with the labouring classes (*loud applause*). It would give them a common topic of conversation; it would serve to remind them that they were all members of the same dignified corporation; to teach them that the hand which labours belongs to the same body as the head which conceives, and the mind which creates; that the three classes were bound by the golden link of common interest and common purpose (*hear hear*). They must excuse him if he expressed his cordial gratification at bearing of the place which had been selected for the meeting of the ensuing year. They would indulge him if, as a native of Lancashire, he felt proud to hear that the great outlet for the manufactures of England had been chosen for the meeting of the Agricultural Society. It was not unnatural that he, the son of manufactures and commerce, who felt the deepest obligation to these for worldly prosperity, and owed to them all the interest he had in the land, should rejoice in the prospect of seeing the commercial interests brought face to face with the agricultural. He was convinced that such a meeting would confirm the natural and almost unanimous opinion which prevailed, that a relation subsisted between them, so close, that they could not be disunited; that it was impossible that manufactures should flourish without shedding a kindly influence on agriculture; or on the other hand, that agriculture could decline, without involving manufactures in its decay (*applause*). There was yet another reason for which he rejoiced that the standard should be planted on the coast of England, on the point which admitted the greatest facilities for intercourse with Ireland and Scotland. From this fact also, he looked for great social results. By this choice they invited Scotland to witness how they had followed her example, and called upon Ireland to follow theirs; and, tempted by no narrow or exclusive spirit, asked Ireland and Scotland to communicate those improvements they might make, and participate in those of this country. They would thus encourage them to enter into that generous and unselfish competition which enabled even the disappointed competitor to retire from the scene, not dissatisfied, and thinking more of the general improvement than of his own individual interest. Such union could not but confirm the friendly feelings and relations of the two countries. The toast which it was his duty to propose was "Success to the English Agricultural Society." It be-

came necessary to call it English on account of the locality to which it was confined, but it had in view to render common benefits to the empire, and not merely to England. With these feelings, reflecting cheerfully on the past, and with cordial anticipations for the future, he would call upon the meeting to drink, with as much enthusiasm as was consistent with the safety of the walls and roofs of the building, the toast which he had the honour to propose—"Success to the English Agricultural Society."

The NOBLE PRESIDENT again rose and said that he had the honour to call on his Grace the Duke of Buckingham to propose the next toast (*loud cheers*.)

The Duke of BUCKINGHAM said that he felt deeply the honour conferred on him. The truly gratifying reception which his name had just met should never be effaced from his memory, and he should on all occasions be ready to prove his high sense of their kindness (*cheers*). The union of commerce, manufactures, and agriculture, was amongst the dearest wishes of his heart. He had always advocated this principle, as he was of opinion that the prosperity of the one depended on the prosperity of the other (*cheers*). He would therefore, without trespassing on the time of the meeting, call upon all present to drink with three times three the toast which he had been called on to propose, namely, "Commerce, manufactures, and agriculture." With the firm union of the three the country must prosper, under the blessings of Divine Providence, in spite of every effort against her (*loud cheers*).

The Duke of RICHMOND then requested the Marquis of Northampton to propose the next toast, and recommended his Lordship to go to the front table.

The Marquis of NORTHAMPTON, in rising to the call which had been just made upon him by his noble friend, regretted that the toast he had to propose had not fallen into worthier hands. It required, however, but to mention the name of the University of Cambridge to have its merits appreciated. Within its walls they would be guilty of that ingratitude which the noble president had said last evening dwelt not in the bosom of English farmers, were they not to express their hearty acknowledgments to the University for their liberality on this great and interesting occasion (*cheers*). The name of the distinguished nobleman at the head of this learned body he was quite sure would be received with pleasure, and hailed with gratitude, by every honest and true-hearted Englishman present. That virtuous man had already laid down several hundred thousand pounds for the necessities of his country (*loud cheers*). Commerce was a good thing—manufactures were a good thing—Agriculture was a good thing; but public virtue was better than all (*great cheering*). Commerce, manufactures, and agriculture united, tend to prosperity and strength; but we could not expect them to be united, and the interests of the country to succeed, without the blessings of Divine Providence. In such distinguished and honourable men, as Lord Camden, this principle was personified, and they held out a bright example which it would be well for the community if it were oftener followed (*cheers*). Lord Camden had served his country long, and long might he live to prove his love of that country, and to deserve her gratitude (*long continued cheers*).

The noble PRESIDENT said, that in the absence of the Vice-Chancellor who had written to him

apologising for his unavoidable absence, the Master of Magdalene would respond to the toast.

The Honourable and Reverend NEVILLE GRENVILLE, master of Magdalene, briefly returned thanks. He could take it upon himself to say, on behalf of the authorities and heads of the body to which he had the honour to belong, that it was their wish, and should always be their earnest endeavour, to promote the interests of their tenantry; and to carry out those great objects which the Society had in view.

The noble PRESIDENT, in proposing the next toast, which was the health of a distinguished individual present, the Honourable A. Stevenson, minister of the United States, and an honorary member of the society, said that he well knew the farmers of England; and they would all warrant him in saying that they wished, one and all, for peace and tranquillity (*cheers*). When war and danger desolated the fairest portion of the world, and when their horrors seemed to threaten our homes from abroad, the farmers and labourers of England were found ready to risk their lives in defence of their country. They were ready again to make the same sacrifice, should the occasion arrive to call for it; but peace at home and abroad was what they wished for; they did not long to see other nations laid waste, that they might be prosperous; it was not their interest or desire that other people's farms should be desolated, their barns destroyed, and their towns and villages plundered (*cheers*). Those who wished for the blessings of peace they met half way, and in this spirit did they meet the good wishes of the American people, whose representative at the court of our Sovereign did them the honour of being present on this occasion (*cheers*). The honourable and distinguished individual to whom he alluded was one of that great nation which had sprung from ourselves; and he (the Duke of Richmond), in the name of the farmers of England, wished it every prosperity, and that it might long continue in peace with this country, cultivating with her those arts and sciences which tended to better the condition of the human race and make it more happy (*loud cheers*). With respect to the honourable gentleman himself (Mr. Stevenson), he had great pleasure in testifying to his character in public and private life, and he was moreover a tried friend of agriculture. He felt interested in the improvement of agricultural science in England, as they should that the same good should extend to America; for the object was not only the agriculture of the land we live in, but the agriculture of the world (*loud cheers*).

MR. STEVENSON, the American minister, rose to return thanks, and was received with loud cheering. He said, in the course of a public life, not very short, he had never been called upon to address so numerous and remarkable an assemblage, and it would be an unworthy affectation if he did not say that he felt his situation novel and embarrassing. He feared that he could not do justice to his feelings and the occasion. The kind and hospitable reception which he had met with, and the gratifying manner in which their noble president had associated his name with that of the two countries, demanded his grateful acknowledgements. He received it with feelings of just pride and sensibility, enhanced as it was by the motives which he believed had prompted it, and the flattering manner in which it had been received by such a distinguished assembly. Deeply sensible, however, as he was of such high honour,

he should but inadequately convey what he felt if he confined himself to the expression of his personal feelings. In relation to himself individually, it was a matter comparatively of little importance; but in another sense, and looking at such an assembly, representing as it did not only the great agricultural interest of England, but of the united kingdom, such kind and liberal sentiments as those which had been expressed were calculated to do good in strengthening the friendly relations between the two countries (*cheers*). He begged, therefore, to thank them most cordially in the name of his country, and to assure them that nothing could be more acceptable to the people of the United States than such sentiments as those which had been so kindly and liberally expressed on this occasion (*cheers*). The noble president had been pleased (said Mr. S.), in allusion to the late negotiations between the two countries, to express a wish that all differences might be satisfactorily adjusted, and peace and concord long continue. In this wish it was hardly necessary for him to say how cordially and sincerely he united, and the pleasure he felt in believing that the wish would be realized. This, he said, fortunately for mankind, was not an age of war. The time had long since passed when hostility was the natural state of man, and peace but a difficult and dangerous experiment. The soldier and the sword, he thanked God, were now no longer the only security for nations. The schoolmaster, and not the warrior, was abroad. Moral power was taking the place of physical force, and the rulers of the world would soon be taught, if they had not learnt it already, that they would have to look for the security of their thrones to moral rather than physical power, and to the virtue and intelligence of enlightened men (*cheers*). In such an enlightened period of the world, when the love of peace and knowledge and Christianity was overspreading the earth, were there, he asked, one Briton or American, one wise or good man, who would not regard a war between two such countries as England and America as one of the greatest calamities that could befall mankind? A war against interest, national honour, the only justifiable cause of war (said Mr. Stevenson)—a war between nations kindred in language and religion, and for what? Not principle, not honour, nor even conquest; but a war to ascertain the geographical line of a treaty of boundary, the legitimate subject of a negotiation and peaceable adjustment (*loud cheers*). Both countries were too wise, he said, to enter into any such war. Neither, he was sure, would feel itself called upon, in vindication of its honour or in defence of its rights, to embark in war. Their best security for peace was in the wisdom and prudence and foresight of the rulers of both countries, and the virtue and intelligence of their people. He, therefore, only spoke the sentiments of the governor and people of the United States when he assured them that America desired peace with all the world, and especially perpetual good understanding with Great Britain, upon terms compatible with the rights and honour of each (*cheers*). The noble duke had therefore done him no more than justice in supposing that he had done everything, officially and individually, to cherish and invigorate the peaceful relations between the two countries, upon the preservation of which, he said, the prosperity and happiness of both nations so essentially depended (*cheers*). He then said that he hoped he should be indulged in interrupting for a moment the flow of their festi-

vity, whilst he noticed very briefly their association, and the benefits it was calculated to bestow on agriculture. He rejoiced, he said, to have it in his power to attend on this occasion. Besides the pleasure he had derived from witnessing, for the two last days, proceedings so congenial with his feelings, it afforded him an opportunity of returning in person his thanks for the honour which had been conferred upon him in deeming him worthy to become an honorary member of such an association. The only regret he felt, however, was that he could not repay such an honour by some corresponding benefit worthy of the society, and of the deep interest he took in its success (*cheers*). In such an assembly it would be needless, he knew, if he were competent, to expatiate upon agriculture, or its benefits to mankind. He begged permission, however, to throw out one or two suggestions, which might not be unworthy of consideration. All concurred in assigning to agriculture a high place in the scale of individual and national interests, though many did not give it the importance it merited, or which it had a right to aspire to. In other words that it was entitled to a much wider scope than was supposed by those who regarded its objects as limited alone to purposes of subsistence. Now a more fallacious opinion could not, he thought, prevail, than to suppose that the responsibilities of agriculture stopped at providing simply food for eaters. Its duties, Mr. Stevenson said, like those of morality, spread beyond the sphere of providing sustenance, into a wide expanse, created by the obligations arising out of the state of society, and was intimately connected with all the great national interests (*cheers*). The support of governments, the encouragement of commerce, the basis of manufactures, the subsistence of the learned professions, and all scientific and mechanical employments, were sustained by this great interest (*cheers*). As an object of universal benefit it should be one of universal patronage. Agriculture, he said, was national property. The whole country one great farm; the inhabitants one great family, in which those who worked least derived the greatest profit. Other classes, then, besides the farmer, have as great an interest as the farmer himself, in as much as the subsistence of those engaged in agriculture were first to be supplied, and then that of the other classes out of the surplus; and, of course, as the surplus was great so would be the gain. Here, then, was a motive, (a selfish one, but not the less strong) why all classes should unite in supporting this great branch of national industry (*loud cheers*). Now, the best mode of doing this is by such associations as the present. By societies for the collection and diffusion of information; the introduction of the best systems and writings of experienced and enlightened men, and by that excitement and emulation, so necessary to all improvement. Science was now admitted to be indispensable to the due success of agriculture. Theory and practice reflected light on each other, and the more so as there was no pursuit in which habit was so unyielding and inveterate as amongst those who cultivated the soil. But he rejoiced in knowing that agriculture was advancing with giant strides under the salutary benefits of science, and especially chemistry and geology. If any man doubted the extent to which science had contributed its aid to agriculture, let him visit England and Scotland. England, which, Mr. Stevenson said, had been denominated the garden of Europe, and justly so. And why? Simply because her whole surface was cultivated on principles which were brought to the test of the

most rigid and exact experiment. Because agriculture was scientifically and philosophically pursued, and because she had such farmers (*great cheers*). Who could go through this great country, and not be delighted and amazed with its agriculture and its rural economy (*cheers*)? If any foreigner wished to know what England really was, he must go to the country, and mix with her farmers and yeomanry (*cheers*). It had been said, by one he believed of the princes of the present reigning family, that the pride of England was in her yeomanry (*cheers*). He re-echoed the sentiment, and, as an agriculturist at home, proud of belonging to such a class (*cheers*). Indeed, next to the proud distinction of being an American citizen, was that of being a cultivator of the soil. It was, indeed, delightful, to witness such an association as this; to see the wise and good, the politician and professor, the public and private man, uniting to uphold this great and good work, and to see charity and peace shedding this holy calm around, refreshing alike to the feelings and intellect (*cheers*). He hoped that the society would prosper. He begged to remind them that upon its wide spreading and far-extending purposes the eyes of Europe and America were fixed with a steady gaze. He trusted there would be no disappointment. Viewed in relation to their own country, it had every motive for support; but viewed in relation to its effects and benefits upon other nations, the motive for exertion and success rose to a far higher and nobler sentiment (*cheers*). It became not the cause (Mr. Stephenson said) of this country, or his, but that of mankind; and who was so poor and sordid in spirit as to think only of himself, or his country, when the great question was, whether the earth should be inhabited and cultivated by enlightened and virtuous and religious men, or by ignorant and debased human beings, and hordes of savages (*great cheering*)? He concluded by repeating his thanks for the great honour and kindness that had been done him, and expressing a wish that the association might fulfil its high purposes, do honour to its framers, and benefit mankind. He sat down amidst great cheering.

"The health of the Duke of Richmond," which was then proposed by Mr. Stevenson, was received with loud acclamations.

The Duke of Richmond: On the present occasion your reception of my name has nearly unmanned me, and I feel incapable of thanking you as I ought. There are feelings of gratitude which it is nearly impossible to express, but I feel that I owe much to being President of the Society, and one of its first founders. Since "war's alarms" have subsided, I have taken every opportunity to meet my brother farmers, and I have attended every place where my voice could be heard, to call on the landowners to do as I did, because I thought if they did not they were depriving themselves of one of the greatest pleasures that a landowner can enjoy; but my meetings have been amongst gentlemen whom I knew and respected, and I felt that they respected me: I now stand before many who perhaps never knew of my existence till they found me President of the Society. I will say that I consider the formation of this Society of great and permanent advantage to all classes in the country. I have never seen or known what there is to prevent our bringing science to bear on agriculture. If we look back for the last twenty years, we shall find the skill and science of our engineers decidedly manifested, and they now run their vessels with such speed of locomotion, that a person can go to New York in fourteen days; and I do not see why we

should not call to our aid that which has been of such benefit to other interests (*Cheers*). I think I may say that the show-yard this morning proved that the farmers of England consider it of great importance to show their stock here; but the show, I will venture to say, has never been surpassed in any country of the world in implements of agriculture—(*Cheers*). I believe in that we have a great advantage, for the implement makers have found it is not enough to show the machines in the yards of their own premises, they all send them here to be looked at by the farmers of England, and to be tried in the field (*Cheers*). This is one great advantage of competition. As a Southdown breeder I agree in giving premiums for sheep; but there is one class which is unexampled, and I will ask any individual to look around this hall, and say whether he ever saw before so goodly a show of the farmers of the country (*Cheers*). I like to see it, because we know they have ever been the foremost in supporting the Throne and in upholding the Constitution (*cheers*), and in doing their duty to the labourers of the land, who look to them for support. I will, as President, beg of you to remember that a man who in war has received a musket ball, has the privilege not to speak too long, and I do this with greater satisfaction, because it cannot in future be drawn into a precedent; for I hope that in future your President will be at all events sound in wind and limb—(*Cheers*). In concluding these few words, you will permit me to say that I knew there are many men much more capable than I am efficiently to have performed the duties of the chair, but I beg to assure you that I defy the country at large to find one more desirous for the prosperity of agriculture, or one more anxious for the welfare of those engaged in its honourable pursuits, or more deeply grateful to the farmers of the country for the manner in which he has been received at their hands, than the individual who begs to assure you that he feels proud in possessing the good opinion of those before him. With a sincere wish that the farmers may flourish, and that their houses may be the abodes of comfort and content, I beg to drink to the health of you and yours (*Cheers*).

The CHAIRMAN called on an eminent individual connected with Ireland for the next toast. He alluded to the Marquis of Downshire (*Cheers*).

The Marquis of Downshire: I obey the President's call with the greatest pleasure, because, having the honour to fill an office in your society, I should ill discharge my duty if I finched on this occasion, and you all look to set an example not only to your neighbours, but to the country, in coming forward to support the excellent objects of the Society. As originators of the society, you have felt it was beneficial to the landlord and the tenant, and that the lower class of society must have an advantage from it; and therefore I concur with the President in the wish and the hope that the labourers of England, Ireland, and Scotland, may derive the comforts and the blessings of the notice of their superiors, which I think will emanate from the rules and regulations of this society (*Cheers*). I am sure, in addressing the landlords and the farmers of England, there will be a response to the sentiment honourable to themselves as well as beneficial to the country. I must say the members of the Universities of Oxford and Cambridge have particularly distinguished themselves in support of this society, and I beg to propose to you "The health of the Master and Fellows of Downing College"—(*Drunk with cheers*).

The MASTER of DOWNING COLLEGE: In rising

to thank you for the great honour you have conferred on me, by the gratifying manner in which you have received my name. I cannot but feel conscious that I am standing before an assembly that represents the great permanent interest of the realm. I see before me the landlords and tenants not of England only, but of Great Britain—I see around me representatives, not of Old England only, but of New America, and others who have connexion with foreign countries, which makes them the representatives of the world at large; and I feel proud that I can contribute in the smallest degree to the furtherance of those objects which we cannot but look on as being of national importance; for when the first movement of this society took place, I confess that it appeared to me it was the precise thing the agricultural interest wanted. There were throughout the realm a vast number of persons who possessed great insight into the principles of agriculture, experimental and theoretical knowledge, but there was wanting a scientific connexion of the scattered elements by which they should be brought into the form of a living whole. This society was calculated to effect that, by bringing about a combination of the knowledge of the practical man with the studies carried on within the walls of the building in which we are now assembled; and there can be no doubt of the truth of the adage which says, "He is a great benefactor of his country who makes two blades of grass grow where one grew before"—(*Cheers*).

The noble PRESIDENT then proposed "the Cambridge Committee," and thanks to them for their exertions (*Cheers*).

The Earl of HARDWICKE, who was received with great cheering, returned thanks. He had not attended much to the duties of the offices he had filled, and he considered much praise was due to Mr. Empson, to whom they were indebted for the use of land, and with the use of grain, which had enabled them to witness the operation of those implements which were yesterday exhibited. It was a gratifying reflection that so many parties could be called together in a manner like the present, utterly forget political strife. While such a feeling existed among the landholders and farmers of the kingdom, this country could never be broken up by any party. It was satisfactory to find that a feeling prevailed amongst the farmers of the country opposed to war, and he knew of no employment which was more beneficial to the kingdom than that by which the landholders were induced to live in the country where their property was situate, and to make themselves productive of the public benefit (*Cheering*). It now became his duty to propose a toast. He was not much acquainted with the Highland Society, but he knew this, that it had existed many years, and was the principal means of forwarding that success to their own Society, which they had that day met to celebrate. He proposed "Success to the Highland Society" (*Loud cheers*).

THE CHAIRMAN.—As President of this Society, I call upon Sir James Graham to return thanks.

SIR JAMES GRAHAM was also received with loud cheering. Until he entered the room he had not the slightest notion that he should have been called on to address the meeting that evening. Had he had notice he might have been able to address the meeting with more precision, but he could assure them that he did so with honest and heartfelt sincerity for the manner in which his health in connexion with the Highland Society had been received. He must first express his regret, that Scotland should on this occasion be represented by one so unworthy as he was (*No, no*). As an agriculturist he thought not

a half-bred but a thorough-bred Scot should have been produced; and he thought so the more when he saw their chair occupied by an hereditary chieftain, the representative of the noble house of Gordon (*Cheers*). A soldier too, who had fought and bled in the defence of his country (*Cheers*). The Duke of Gordon had been the first to form the Highland Society in Scotland, whilst their President that day had been principally instrumental in forming the English Association. He (Sir James) was delighted to witness the progress of this Society, which appeared to have followed the rules of the Highland Society, and was characterised by a total absence of party politics, and a determination to meet only for the cultivation of knowledge, and an interchange of experience (*Cheers*). Pursuing this course, he had not the slightest hesitation in pronouncing that the Society would succeed in the object which they had at heart. It is said that an admixture of soils produces fertility; and a mixture of all classes gives solidity and strength to the Society (*Cheers*.) It is that which constitutes the greatness and the boast of the happy land we inhabit, and I am sure in no part of the United Kingdom will exertions be wanting to furnish to the people at the cheapest cost, a sure and constant supply of the bread they eat (*Cheers*).

The noble CHAIRMAN then called on Dr. Buckland to propose the next toast.

Prof. BUCKLAND then rose, and was warmly received. He said, My Lord Duke, I duly and highly appreciate the compliment that has been paid to me, or rather to the offices I have the honour to hold as President of the Geological Society of London, and Professor of Mineralogy and Geology in the University of Oxford, in consigning to me the duty which I joyfully undertake, of proposing the healths of the Professors of the University of Cambridge. I rejoice in every occasion of contributing my humble endeavours to promote the objects of this great National Society, which I deem to be fraught with benefits of inestimable importance to the agricultural interest, and as tending rapidly to do away the reproach under which the farmers of England have so long laboured, that they alone have been tardy to appreciate and apply to their profit the numerous discoveries of modern science, whilst the manufacturers have been prompt to avail themselves of every discovery in chemistry or mechanics, and have by such means accumulated wealth to an incalculable amount. The just reproach I allude to is on the point of being speedily and for ever annihilated through the instrumentality of this Society; partly by presenting to assembled thousands at meetings like those of this morning, the results of science practically applied to the breeding of stock and construction of agricultural implements, and still more effectively by imparting to every farmer in the nation through the medium of the journal of this Society, the methods of conducting the most approved experiments for the amelioration of the land. In the first memoir of this journal, your President elect (Mr. Pusey) has most ably and accurately depicted the defects and desiderata in the present systems of British agriculture, and shown how many of them may be supplied by the application of the discoveries of science; and now that in this publication you have a vehicle wherein the results of every agricultural improvement may be faithfully recorded, experiments of the highest value, the memorial of which, had they been made in times past, would have perished together with their author, unheard of beyond the limits of the village in which they were conducted, will no longer fail to be

duly appreciated, and rapidly disseminated over the world. The present meeting has offered me three practical illustrations of the service this Society and its Journal may render by such rapid dissemination of valuable agricultural information. 1st. Mr. Pusey was yesterday informed by an occupier of land near the scene of our experiments on ploughing, that in the vicinity of this field there runs a narrow tract of peculiar excellence for producing seed wheat which is known all over Cambridgeshire and the adjoining counties by the name of Burwell wheat. I have little doubt this tract of land lies on certain strata beneath the chalk, which although near Cambridge, they are but a few feet thick, are known by geologists to occupy a similar place (but usually in much greater quantity), between the chalk formation and the gault clay, and to extend over a considerable portion of the south-east of England, at the base of the great encampments of the chalk hills; and it is probable that the same capacity for producing good seed wheat, may accompany this peculiar series of strata, throughout their whole extent. 2nd. I was told this morning by Lord Hatherton that in the counties of Northumberland, Nottingham, and Hants., extraordinary success has been lately found to attend the culture of Italian rye grass as fodder for sheep, these animals selecting it exclusively from other plants sown with it, and thriving wonderfully upon such food—that in the case of a square piece of land, sown exclusively with Italian rye grass, and having on its margin common clover, the Italian grass alone was eaten, to the neglect of the surrounding clover, so that the field resembled a velvet carpet surrounded by a coarse fringe of wool. I also learn from Mr. Rodwell, that at Alderton, near Woodbridge, in Suffolk, he sowed this grass, last year, on three kinds of soil, resting severally on the sandy, and calcareous, and clay strata of that county, and had on each an incredibly large amount of produce, which was greedily eaten by cattle of every kind; and that he is preparing to have a hundred acres more of it next year. It is of vast importance to ascertain the natural composition of the soils on which the Italian rye grass will thrive best, and to disseminate this information as speedily as possible to the agriculturists of England through the medium of our journal. It is important also to observe what its effects will be upon the crops succeeding it. 3. We have witnessed the facilities with which the subsoil plough may be applied to improve the productiveness of the surface; and now that their general use may be considered as almost certain to be adopted, how important is it for the farmer to be informed by the geologist what the exact nature and quality of the respective subsoils may be, into which the plant will thus be enabled to send down its roots; how valuable is the information conveyed by an engraving I hold in my hand, representing, on the authority of an experienced surveyor, Mr. Badcock, the roots of wheat that grew in Oxfordshire, some years ago, and were found to penetrate to a depth of four and five feet, in a soil that admitted of such descent; and how important is it to the English agriculturist to know that there is a laboratory in London, in the Museum of Economic Geology, attached to her Majesty's Board of Woods and Forests, in Craig's Court, Charing Cross, to which any individual may send one pound of any soil of which he wishes to know what are the ingredients, and for a fixed fee (I believe of twenty shillings) obtain an exact analysis of the same, conducted by Mr. Richard Phillips, whose name has long been in the first rank of the analytical chemists of Europe. It is by methods like those

just cited, that occasions are now offered to the agriculturists of England of carrying out the spirit of the motto stamped on the seal of our Society, by uniting "Practice with Science," and it was well befitting so great an object that our first meetings should be holden in the ancient Universities of the land, of whose special duty it is no small part to give instruction from the chairs of Professors of Science, to a large proportion of the rising generation who will, hereafter, become landed proprietors; and to no event of my academic life do I look back with more pure delight than to the hearty, though imperfect, service which it became my duty to offer to the society, on the occasion of their first meeting. I rejoice, also, that I am permitted to attend the present meeting in the sister University, and to witness the sympathy which is felt at Cambridge, no less than Oxford, in the great and important proceedings of the Royal English Agricultural Society. It was noticed by the Vice-Chancellor of Oxford, last year, that a Professorship of Rural Economy would speedily be there established, in the person of the Professor of Botany, and endowed from funds bequeathed by a former Professor of Botany, Dr. Sibthorpe, for the purpose, first, of publishing his *Flora Græca*, and secondly, of annexing to the chair of Professor of Botany the further duty of Lecturer on *Rural Economy*. The present year having terminated the publication of the *Flora Græca*, Dr. Daubeny has become the first occupier of the Agricultural chair, and is now setting out on an extensive tour through Europe, to study the actual state of Agriculture among our continental neighbours, and collect materials for a library, consisting of works on agriculture, which Dr. Sibthorpe has ordered to be purchased annually, with the surplus of his funds beyond the sum appointed for the salary of the Professor. From the labours of Dr. Daubeny, thus called into activity, the Agriculture of England may speedily derive advantages of no small amount. The University of Cambridge has, I believe, no similar endowment bearing thus directly upon practical agriculture, but the mathematical tendency of its predominating studies is eminently calculated to qualify its scholars for the important service of improving the mechanism of agricultural implements, by diminishing the loss of force by friction, and suggesting the most advantageous application of the mechanical powers, in every detail of their construction; so that, in no long time, we may expect to see universally adopted throughout the land, such improved implements and machinery as will enable two horses to perform with ease the work that is now with difficulty performed by four. The University of Cambridge possesses, also, in its professor of Botany, Mr. Henslow, a distinguished vegetable physiologist, pre-eminently qualified to prepare, as he has engaged to do, a systematic table of instructions to be followed by individual cultivators in distant parts of the country, for the purpose of collecting a series of results that may lead to a sound theoretical understanding of the principles which regulate the growth of vegetables, and of the influence exerted thereon by meteoric causes, by soil, and by animal, vegetable, and mineral manures. Professor Cumming is not less ready to contribute from the rich resources of his long acknowledged skill in chemistry, towards the application of this important science to improvements in agriculture. My friend and colleague, Professor Sedgwick, who deeply deplores his inevitable absence on this occasion, will joyfully co-operate with me in pointing out the almost innumerable, but now neglected sources, from which an exhaustible supply of mineral manure

may be derived for the permanent improvement of barren lands; not to the *exclusion*, or in preference to the animal and vegetable manures, as was erroneously imagined by a gentleman who spoke upon the subject yesterday, but as *auxiliary* to them, and *additional*, and as necessary, precursors in the case of thousands of acres, now absolutely barren for lack of having added to them portions of subjacent or adjacent strata, composed of materials different from those at the surface, the addition of which would produce that *admixture* of the elementary earths of flint and clay and lime, which is indispensable to give the greatest fertility to soils. Lastly, Professor Whewell, the historiographer of all sciences, and successful cultivator of so many, is panting for the occasion, now so near at hand, of dedicating another volume to the philosophy of the science of agriculture, as it will henceforth be practised by the members of the Royal Agricultural Society of England. [The learned Professor closed his speech amidst great applause, which indeed had greeted him during his whole delivery.]

The Duke of Richmond said he had now to introduce to their notice Professor Whewell, whom the Council had selected to respond to the toast just proposed.

Professor WHEWELL said, he had now to appear before them as the representative of the Professors of the University of Cambridge. He came thus forward in obedience to the wishes of the Council, but, desirous as he was to shew his respect to the meeting for the honour he had received, he felt that he himself would be incapable to contribute much to the success of the society. As the Professor of Moral Philosophy, his pursuits necessarily prevented him from immediately aiding the great body he saw around him; but he could assure them that, in the University of Cambridge, the Professors, as a body, were fully capable of advancing the interests of the society; they were second to none in the desire, and inferior to few in ability, to aid the great cause the society had in view. (*Cheers.*) In Chemistry, they had Professor Cumming, whose powers to benefit agriculture were of the first order. In Geology, they had Professor Sedgwick, than whom there could scarcely be found one more qualified to teach the farmer what it was necessary for him to know respecting the different soils it might be his lot to cultivate. In Botany, they had Professor Henslow, already known to many, and likely to be more known to them. In Comparative Anatomy, a branch of science of the highest importance to those who wished to promote the improvement of the breed of cattle, they had Professor Clark, who had already done much in his department, by collecting the splendid museum now possessed by the University, and which, if there were any present who had not seen it, he most earnestly invited them to inspect it.—That Professor Willis, the Professor of Mechanics, was well adapted for the office he held he would illustrate by the fact, that, in visiting the implements shewn that day, he had pointed out to him, as one of the great advantages of a machine, that the toothed wheels were made according to the rule laid down by the Professor of Mechanics in the University of Cambridge. Thus, in this instance at least, a Professor of the University of Cambridge was successfully aiding the agriculturist in improving the means he had to benefit himself and his country. He felt assured that his most sanguine anticipations would be more than realized, if the practical agriculturist would co-operate with and carry into effect the suggestions of those who devoted their lives to theoretically carrying out the principles of science.

As the Professor of Moral Philosophy, his duty was peculiarly to inculcate the principles of probity, and the duty of one to another; and, in doing this, he could not shut his eyes to the fact, that if one class has distinguished itself more than another by the possession of these high principles, it has been the agricultural, who, on all occasions seems to have considered that their own property and that of their country was involved in the support of all that was just and holy—all that partook of the noblest sentiments we cherish—all that was characteristic of our national religious feeling.

The President then called the attention of the meeting to the Duke of Rutland, who was deputed to give the next toast.

The Duke of RUTLAND, who spoke in a very low tone, we understood to say, that he had heard a remark, in reference to the society, that they wanted "a clear stage and no favour;" he was somewhat in a different predicament, for he had "a clear stage," and he wished for "the favour" of the meeting. One hon. gentleman had spoken of his alarm at the suddenness of the call which had been made upon him, but that gentleman was accustomed to public speaking; what then must be his (the Duke of R's.) condition, who was totally unaccustomed to such displays, and who had scarcely ever attempted to address a meeting composed of one-tenth of the number present. He could not survey the meeting before him without the greatest gratification, and he was anxious to express his joy, at recollecting that he had been one of the first who had enrolled himself a member of the society. (*Cheers.*) He would conclude by expressing to the meeting, that, in all they undertook, they might rely upon his cordial concurrence; and, expressing his belief that there was no occupation more honourable than that of agriculture, he would propose the toast assigned to him, namely, "the health of the Stewards of the Yard, and Judges of the Shew."

Earl SPENCER then rose from the table below the President, to return thanks for himself and his colleagues for the honour conferred upon them, and said that, if the exertions of himself, with Mr. Pym and Mr. Druce, were such as to render the shew satisfactory, any trouble it might have cost them was amply repaid. The office of the Judges was one of great responsibility, and was, moreover, a very unthankful office; to them, therefore, the society ought to feel greatly obliged, and though universal satisfaction could not be anticipated from their decisions, he felt bound to say, that, having been present himself during the whole time of the examination, it was impossible that more attention could be paid, or greater exertions made, to approach the consummation wished—that of doing justice to all. He could not conclude without expressing his belief, that the institution of which they were members was calculated to be of the greatest benefit to the Agricultural interest—it was *the thing* wanted, and he was sanguine as to the results. The noble Earl then eulogised Sir Robert Peel for the great interest he had taken in the formation of the society, and also in the carrying out its objects, and concluded by proposing the toast assigned to him—"The Mayor and Corporation of Cambridge."

The Duke of Richmond then rose to propose "The Agricultural Labourer," and having pointed out their patience under difficulties, and that one object of the society was to improve their condition, concluded by requesting the meeting to drink the toast with three times three. (*Great cheering.*)

HENRY HANDLEY, Esq., M.P., having been appointed to propose the next toast, spoke as follows:—My Lord Duke and gentlemen, I have been honoured with the pleasing task of introducing to you the name of the President elect, Mr. Pusey. It is a satisfaction to me to feel, that however I may be deficient in language to do justice to the toast, I am fortunately in the position of bearing a plain, unvarnished testimony to the claims that gentleman has on the favourable consideration and gratitude of this society, and to the high honour which has been unanimously awarded to him of presiding over you during the ensuing year. When this society first struggled into existence, it received the zealous and fostering support of Mr. Pusey; and when it was found desirable to publish a Journal, setting forth our objects and intentions, and to present to the public in proper form the communications of those who were more accustomed to labour in the field of nature than the field of letters, Mr. Pusey did not hesitate to quit for a time those higher walks of literature and of science in which he had attained a distinguished position; and to bring the powers of his comprehensive mind, and the assiduity of his habits to the laborious task of editing your Journal.

Mr. PUSEY, who was heard to great disadvantage in consequence of the breaking up of the meeting, observed, when he had unexpectedly been called upon to fill the office of President of the society, he should not have felt justified in accepting that office if Lord Spencer had not thought he would be able to discharge it. That at that hour, and after the speech, in which Sir Robert Peel had shewn that there is no subject, to which he turned his mind, of which he did not at once see the main bearings, and none which he entered upon that he did not adorn, it would be presumptuous in him (Mr. P.) to say one word more upon their objects, indeed he feared that the growing numbers of the society, as they now exceeded the power of his own voice, would soon be too much for voices far stronger than his. He would only, therefore, express his hope, that, as they had already twice gathered within the hospitable walls of the two Universities, and, following out their own objects, had found time to contemplate the noble buildings, within which so much was done for preserving the moral strength of the country, so they might rally in the next year at Liverpool, where they would view that shipping and those vast docks, which contributed so much to our political strength.

The noble Chairman and his immediate friends then left the Pavilion, and thus closed one of the most imposing spectacles ever witnessed.

AWARD OF PRIZES.

CAMBRIDGE MEETING, JULY 14, 1840.

Stewards: the Right Hon. the Earl Spencer, of Althorp, near Northampton; F. Pym, Esq., of the Hasells, near Biggleswade; and Mr. Druce, of Ensham, near Oxford. Director of the yard, Mr. Humphrey Gibbs, Hon. Secretary, Smithfield Club.

CATTLE.

CLASS I.—SHORT-HORNS.

Judges: Mr. John Wright, Mr. Eaton Clarke, and Mr. W. Smith.

The best Short-horned Bull, calved previously to the 1st of January, 1838.

Prize of 30 sovereigns, adjudged to Mr. Paul, of Pentney, Norfolk, for his 4 years and 3 months old

Durham Bull, bred by Mr. Topham, of West Keal, Lincolnshire.

The other competitors were—The Rev. D. Gwilt, of Icklingham, Suffolk; Mr. Adeane, of Babraham, Cambs.; Mr. J. Beasley, of Chapel Brampton, Northamptonshire; Mr. Barnard, M.P., of Gosfield Hall, Haleslad; Rev. E. Lindsell, of Broom Hall, Beds.; Mr. T. Bates, of Kirkleavington, Yorkshire.

The best Bull, calved since the 1st of January, 1838, and more than one year old.

Prize of 15 sovereigns, adjudged to Mr. R. M. Jaques, Richmond, Yorkshire, for his one year and ten months old short-horned Bull, bred by Mr. Parkinson, of Babworth, Notts.

The other competitors were—Mr. Montfort Strickland, of Guilden Morden, Cambs.; Mr. Robert Ayres, of Girtford, Beds.; Rt. Hon. C. Arbuthnot, Woodford, Northamptonshire; Mr. J. Feast, of Upwell Fen, Cambs.; Mr. George Carrington, jun., of Great Missenden, Bucks.; Mr. A. Scott, of Walton, Surrey; Mr. J. Harradine, of Needingworth, Hunts.; Mr. Thomas Clarke, of Wimbish, Essex; Mr. Henry Cleeve, of Rettendon, Essex; Messrs. I. C. Etches, of Liverpool, and T. Foreman, of Cressage, Salop.

The best short-horned Cow, in Milk.

Prize of 15 sovereigns, adjudged to Mr. T. Bates, of Kirkleavington, Yorkshire, for his 6 year old short-horned Cow, bred by himself.

The other competitors were—The Earl of Hardwicke, Wimpole, Cambs.; Rt. Hon. Charles Arbuthnot, of Woodford, Northamptonshire; Mr. Henry Beaufoord, of Holmes, near Biggleswade, Beds.; The Marquis of Exeter, Burghley Park, Northamptonshire; Mr. Jonas Webb, Babraham.

The best Short-horned in-calf Heifer, not exceeding three years old.

Prize of 15 sovereigns, adjudged to the Right Hon. C. Arbuthnot, of Woodford, Northamptonshire, for his 2 year and 3 months old Durham heifer, bred by himself.

The other competitors were—Mr. E. Calvert, of Hudson, Herts.; Mr. Jonas Webb, of Babraham, Cambs.; Messrs. Etches and Foreman, of Liverpool.

The best Short-horned Yearling Heifer.

Prize of 10 sovereigns, adjudged to Mr. R. M. Jaques, of St. Trisians, Richmond, Yorkshire, for his one year and ten months old short-horned yearling heifer, bred by the Earl of Carlisle.

The other competitors were—Mr. J. E. Gameau, of Stilton, Hunts.; Messrs. Etches, of Liverpool, and Foreman, Cressage, Salop.; Mr. W. Robinson, of Bletsoe, Beds.; Mr. Adeane, of Babraham, Cambs.; The Earl of Hardwicke, Wimpole, Cambs.; Mr. Philip Tillard, of Alwalton House, Hunts.; Marquis of Exeter, Burghley Park, Northamptonshire; Mr. H. Beaufoord, of Holmes, near Biggleswade, Beds.; Rev. E. Lindsell, of Broom Hall, Beds.; Mr. Carrington, jun., of the Abbey, Great Missenden, Bucks.

The best Short-horned Bull Calf.

Prize of 10 sovereigns, adjudged to Mr. Thomas Bates, of Kirkleavington, Yorkshire, for his 8 months old short-horned bull-calf, bred by himself.

The other competitors were—Rt. Hon. C. Arbuthnot, of Woodford, Northamptonshire; Mr. J. S. Sharp, of Chippenham Park, Cambs.; Mr. John Warsop, of Alconbury Hill, Hunts.; Mr. Barnett, of Stratton Park, Beds.; Mr. R. B. Harvey, of Hurlston, Norfolk; Mr. Carrington, jun., of the Abbey, Great Missenden, Bucks.; Marquis of Exeter, Burghley Park, Northamptonshire.

CLASS II.—HEREFORDS.

Judges: Mr. John Buckley, of Nermanton Hill, Mr. Robert Lucas, and Mr. H. Chamberlain, of Desford, near Leicester.

The best Hereford Bull, calved previously to the 1st of January, 1838.

Prize of 30 sovereigns, adjudged to his Grace the Duke of Bedford, of Woburn Abbey, for his Grace's 2 yrs. and 8 months old Hereford Bull, bred by Mr. Yield, of Herefordshire.

The other competitors were—Sir Hungerford Hoskyns, Bart., of Hereford, Herefordshire; and Mr. W. James, of Hereford.

The best Hereford Bull, calved since the 1st of January, 1838, and more than one year old.

(No entry.)

The best Hereford Cow in milk.

Prize of 15 sovereigns, adjudged to Sir H. Hoskyns, Bart., of Hereford, Herefordshire, for his 5 years old Hereford Cow, bred by himself.

The best Hereford in-calf Heifer, not exceeding three years old.

Prize of 15 sovereigns, adjudged to Sir H. Hoskyns, Bart., of Hereford, Herefordshire, for his 2 years and 5 months old Hereford Heifer.

The other competitor was—Mr. F. Hower, of Hereford.

The best Hereford yearling Heifer.

Prize of 10 sovereigns, adjudged to Mr. F. Hower, of Hereford, for his 1 year and 11 months old Hereford yearling Heifer.

The best Hereford Bull Calf.

(No entry.)

CLASS III.—DEVONS.

Judges.—Mr. Wyndham, Mr. Stace, and Mr. G. Smythies, of Leominster.

The best Devon Bull, calved previously to the 1st of January, 1838.

Prize of 30 sovereigns, adjudged to Mr. W. Porter, of Hembury Fort, Buckwell, Devonshire, for his 3 years and 2 months old Devon bull, bred by Mr. Quartly.

The other competitors were—Mr. T. Reynolds, of Thoverton, Devon; Mr. G. Salter, of Crewkerne, Somerset; the Duke of Norfolk; Lord Western.

The best Devon Bull, calved since the 1st of Jan. 1838.

Prize of 15 sovereigns, adjudged to his Grace the Duke of Norfolk, of Fordham, for his Grace's 1 year and 5 months old Devon bull, bred by his Grace.

The other competitors were—Mr. G. Turner, of Barton, near Exeter, Devon; Lord Western.

The best Devon Cow in Milk.

Prize of 15 sovereigns, adjudged to Mr. Thomas Umbers, of Wapenbury, Warwick, for his 5 years old North Devon Bull, bred by the late Mr. Talbot, of Temple Guiting, Gloucestershire.

The other competitors were—Mr. T. Stephens, of Whitelackington, Somerset; Mr. James Davy, of North Molton, Devon.

The best Devon in-calf Heifer, not exceeding 3 yrs. old.

Prize of 15 sovereigns, adjudged to Mr. G. Turner, of Barton, near Exeter, for his 2 years and 10 months old North Devon Heifer, bred by himself.

The other competitors were—Mr. G. Turner, of Barton, near Exeter, Devon; Mr. Thomas Stephens, of Whitelackington; the Duke of Norfolk; Lord Western.

The best Devon yearling Heifer.

Prize of 10 sovereigns, adjudged to Mr. G. Turner, of Barton, near Exeter, for his 1 year and 4 months old North Devon yearling Heifer, bred by himself.

The other competitors were—Right Hon. Lord Western, of Felix Hall, Devon; Mr. Thomas Stephens, of Whitelackington.

The best Devon Bull Calf.

Prize of 10 sovereigns, adjudged to Mr. Thomas Stephens, of Whitelackington, Somerset, for his 5 months old Devon Bull Calf, bred by himself.

The other competitors were—Lord Portman, of Bryanston, Dorsetshire; the Duke of Norfolk.

CLASS IV.—CATTLE OF ANY BREED OR CROSS,

Not qualified for Classes 1, 2, 3.

Judges.—Mr. — George, Mr. John Ellman, and Mr. John Hall.

The best Bull, calved previously to the 1st of Jan. 1838.

Prize of 30 sovereigns, adjudged to Mr. J. Putland,

of West Firle, Sussex, for his 3 years and 2 months old pure Sussex Bull, bred by Mr. Putland.—[Mr. S. Crisp's 2 years and 10 months old Durham Bull was disqualified, the Stewards being of opinion that it is of the short-horn breed.]

The other competitors were—Mr. H. Overman, of Weasenham, Bucks; Mr. T. Crisp, of Gedgrave, Suffolk; Mr. R. Johnson, of Burwell, Cambs.

The best Bull, calved since the 1st Jan. 1838.

Prize of 15 sovereigns, adjudged to Sir E. Kerrison, Bart., M.P., of Oakley Park, Suffolk, for his 1 year and 4 months old Suffolk Bull.

The other competitors were—Mr. J. Hillman, of Ringmer, Suffolk; and the Duke of Rutland.

For the best Cow in Milk.

Prize of 15 sovereigns, adjudged to Mr. J. Putland, of West Firle, Sussex, for his 5 years and 2 months old pure Sussex Cow.

The other competitors were—The Duke of Rutland, and Lord Braybrooke.

The best in-calf Heifer not exceeding 3 years old.

Prize of 15 sovereigns, adjudged to Mr. J. Putland, of West Firle, Sussex, for his 2 years and 3 months old in-calf Heifer, bred by himself. [No other competitor.]

The best yearling Heifer.

Prize of 10 sovereigns, adjudged to Mr. J. Putland, of West Firle, Sussex, for his 1 year and 3 months old pure Sussex yearling Heifer.

The other competitor was—Sir E. Kerrison, Bart.

The best Bull Calf.

Prize of 10 sovereigns, adjudged to Mr. J. Putland, of West Firle, Sussex, for his 5 months old Bull Calf, of the pure Sussex breed. [No other competitor.]

CLASS V.—HORSES.

Judges, Mr. G. Clarke, of Barnaby Moor; Mr. C. Bowman, of Greatford, Market Deeping.

The best Cart Stallion.

Prize of 30 sovereigns, adjudged to Mr. John Bell, of Welton-le-Wold, Lincolnshire, for his 12 years old cart stallion, bred by by Mr. J. Adams, of Landbeach, Cambs.

The other competitors were—Mr. C. Plant, of Farnham, Suffolk. Mr. J. Ivatt, of Cottenham, Cambs. Mr. T. Webb, of Hildersham, Cambs. Mr. John Biddall, of Caxton, Cambs. Mr. E. Ellis, of Soham, Cambs. Mr. R. Daintree, of Hemingford Abbots, Hunts. Mr. W. Davies, of Radwinter, Essex. Mr. R. Johnson, of Burwell, Cambs. Hon. Captain Spencer, of Althorp, Northamptonshire. Mr. E. B. Washlourne, of Greenham, Berks. Mr. W. Nix, of Somersham, Hunts. Mr. T. N. Catlin, of Chillesford, Suffolk. Mr. H. Crosse, of Boyton Hall, near Stowmarket, Suffolk. Mr. W. Worledge, of Cresting St. Peter's, Suffolk. Mr. Francis Kerr, of Raydon, Suffolk. Mr. T. Crisp, of Gedgrave, Suffolk. Mr. J. Hayden, of Arrington, Cambs.

The best Cart Mare and Foal.

Prize of 15 sovereigns, adjudged to Mr. T. N. Catlin, of Chillesford, Suffolk, for his cart mare and foal, bred by Mr. Cooper, of Friston, Suffolk.

The other competitors were—Mr. J. Webb, of Horseheath, Cambs. Lord Braybrooke, Audley End, Saffron Walden, Essex. Mr. R. Daintree, of Hemingford, Abbots, Hunts. Mr. H. Cross, of Boyton Hall, Stowmarket.

*The best Stallion for breeding Hunters, Carriage-horses, or Roadsters, which shall have served Mares during the season of 1840, at a price not exceeding 3*l.* each.*

Prize of 30 sovereigns, adjudged to Mr. John Reynolds, of Wisbech, Cambs., for his 8 year old stallion, bred by Mr. J. O. Taylor, of Flixton.

The other competitors were—Mr. E. Pells, of Culpho, Suffolk. Mr. A. Hammond, of Westacre, Norfolk. Mr. W. Lacy, of Panton, Lincolnshire. Mr. J. Cullam, of Ipswich, Suffolk. M^{rs} H. Middleton, of

Ridlington, Oxon. Mr. C. W. Minet, of Brasted, near Seven Oaks. Mr. J. Shippey, of Horseheath, Cambs.

SHEEP.

CLASS VI.—LEICESTERS.

Judges, Mr. John Manning, Mr. Thomas Chapman, of Stoneleigh, Coventry, and Mr. W. Pratt, of Newfield, Warwick.

The best Shearling Leicester Ram.

Prize of 30 sovereigns, adjudged to Mr. Samuel Bennett, of Bickering's Park, Beds., for his 16 months old pure Leicester Shearling Ram, bred by himself.

The second best Shearling Leicester Ram.

Prize of 10 sovereigns, adjudged to Mr. Samuel Bennett, of Bickering's Park, Beds., for his 16 months old Leicester shearing ram, bred by himself.

The other competitors were—Mr. E. Dawson, of Ingthorpe, Rutlandshire; Mr. Robert Faldor, of Lidlington Beds; Mr. Thomas Inskip, of Marston, Beds; Mr. W. Umbers, jun., of Wappenbury; Mr. J. Bennett, of Tomsford, Beds; Mr. W. F. Hobbs, of Marks Hall, near Coggeshall; Mr. W. Salisbury, of Dordon, Warwickshire; Mr. John Earl, of Earls Barton, Northamptonshire; Mr. T. E. Pawlett, of Tinwell, Rutlandshire, and Mr. G. Turner, of Barton, Devon.

The best Leicester Ram of any other age.

Prize of 30 sovereigns, adjudged to Mr. T. E. Pawlett, of Tinwell, Rutland, for his two years and 4 months old Leicester ram, bred by himself.

The other competitors were—Mr. W. F. Hobbs; Mr. John Bodley, of Stockley, Pomeray, Devonshire; Mr. J. Earl, of Earls Barton; Mr. E. Dawson, of Ingthorpe, Rutland; Mr. T. Inskip, of Marston, Beds; Mr. M. Crisp, of Letheringham, Suffolk; Mr. J. G. Watkins, of Woodfield House, Worcester; Mr. J. Bennett, of Tomsford, Beds; Mr. W. Umbers, of Wappenbury, Warwick; Mr. E. Lythall, of Foleshill, Warwickshire; Mr. R. Bedger, South-hill, Beds; Mr. T. E. Pawlett, of Tinwell, Rutland; Mr. George Turner, of Barton, near Exeter, Devon; Mr. W. Golborne, of Witcham, Cambs.

The best pen of Five Leicester Ewes, with their Lambs.

Prize of 10 sovereigns, adjudged to Mr. T. Inskip, of Marston, Beds., for his pen of five Leicester Ewes, with their Lambs.

[No competitor.]

The best pen of Five Leicester Shearling Ewes.

Prize of 10 sovereigns, adjudged to Mr. W. Pawlett, of Barnack, Northamptonshire, for his pen of 16 months old new Leicester shearing Ewes, bred by himself.

The other competitor was—Mr. H. Beauford, of Holme, near Biggleswade.

CLASS VII.—SOUTH-DOWNS.

JUDGES.—Mr. J. Bevan, of Thornham, Wilts.; Mr. J. Raymond Barker, of Fairford Park, Gloucester; Mr. H. Chamberlain, of Desford, Leicester.

The best Shearling short-woolled Ram.

Prize of 30 sovereigns, adjudged to his Grace the Duke of Richmond, of Goodwood Park, for his Grace's sixteen months old Southdown shearing Ram, bred by his Grace.

The second best Shearling short-woolled Ram.

Prize of 10 sovereigns, adjudged to Mr. T. Crisp, of Gedgrave, Suffolk, for his 16 months old Southdown shearing Ram, bred by himself.

The other competitors were—Mr. H. Overham, Weasenham, Norfolk; Mr. J. Hillman, Ringmer, Sussex; Mr. J. T. Bennet, of Chevely, Cambridgeshire; Mr. G. Drake, of Manor Farm, East Tytherley, near Stockbridge; Mr. T. N. Cattlin, of Chillesford, Suffolk; Mr. T. Crisp, of Gedgrave, Suffolk; Mr. M. Crisp, of Letheringham, Suffolk; Mr. R. B. Harvey, of Harleston, Norfolk; Mr. S. Shillito, of Barrow, Suffolk; Mr. H. Boys, of Waldershare, Kent; Mr. T. Ellman,

of Beddingham, Sussex; Mr. J. Webb, of Babraham, near Cambridge.

The best short-woolled Ram of any age.

Prize of 20 sovereigns, adjudged to Mr. T. Crisp, of Gedgrave, Suffolk, for his 3 year old Southdown Ram, bred by himself.

The other competitors were—Mr. J. T. Bennet, of Chevely, Cambridgeshire; Mr. E. Lugar, of Hengrave, Suffolk; Mr. E. G. Bernard, M.P., of Gosfield Hall, near Halsted, Essex; Mr. H. Overman, of Weasenham, Norfolk; Mr. J. Hillman, of Ringmer, Sussex; Mr. T. N. Cattlin, of Chillesford, Suffolk; Mr. W. Bryant, of Newmarket, Suffolk; Mr. S. Shillito, of Barrow, Suffolk; Right Hon. Lord Western, of Felix Hall, Essex; Mr. S. Grantham, of Stoneham Lewes, Sussex; the Hon. H. W. Wilson, of Diddington, Norfolk; Mr. J. Harris, of Hinton, Berks.; Mr. H. Boys, of Waldershare, Kent; his Grace the Duke of Richmond, of Goodwood, Sussex; Mr. Jonas Webb, of Babraham, Cambridgeshire.

The best Pen of 5 short-woolled Ewes, with their Lambs.

Prize of 10 sovereigns, adjudged to Mr. J. Webb, of Babraham, Cambs., for his pen of Southdown Ewes, and their Lambs, bred by himself.

The other competitors were—Mr. J. T. Bennet, of Chevely, Cambridgeshire; Mr. H. J. Adeane, of Babraham, Cambs.; Mr. Jonas Webb, of ditto.

The best Pen of 5 short-woolled shearing Ewes.

Prize of 10 sovereigns, adjudged to Mr. J. Webb, of Babraham, for his pen of Southdown shearing Ewes, bred by himself.

The other competitors were—the Hon. W. Wilson, of Diddington, Norfolk; Mr. J. Hudson, of Castle Acre, Norfolk; his Grace the Duke of Richmond, of Goodwood, Sussex; Mr. J. Webb, of Babraham, Cambs.; Mr. H. J. Adeane, of ditto; Mr. H. Overman, of Weasenham, Norfolk; Mr. T. Crisp, of Gedgrave, Suffolk; his Grace the Duke of Norfolk, of Farnham, Suffolk; Mr. S. Webb, of Babraham, Cambridgeshire.

The Judges commended this class in general.

CLASS VIII.—LONG-WOOLLED SHEEP,

Not qualified to compete for Class 6.

Judges—Mr. Hindley, and Mr. J. Elliot, of Chapel Brampton.

The best shearing long-woolled Ram.

Prize of 30 sovereigns, adjudged to Mr. Large, of Broadwell, for his long-woolled shearing ram, 16 months old, bred by himself.

The second best shearing long-woolled Ram.

Prize of 10 sovereigns, adjudged to Mr. J. Harradine, of Needingworth, Hunts., for his 16 months old long-woolled shearing ram, bred by himself.

The other competitors were—Mr. J. Fallagar, of Milton, next Sittingborne, Kent; Mr. R. Dawson, of Withcall House, Lincolnshire; Mr. J. Harradine, of Needingworth, Hunts.; Mr. E. Dawson, of Ingthorpe, Rutlandshire.

The best long-woolled Ram of any other age as above.

Prize of 30 sovereigns, adjudged to Mr. C. Large, of Broadwell, Oxon, for his three years and four months old New Oxfordshire long-woolled ram, bred by himself.

The other competitors were—Mr. W. Gale, of North Farnbridge Hall, Essex; Mr. W. Gobbarn, Witcham, Cambridgeshire; Mr. R. Dawson, of Withcall House, Lincolnshire; Mr. E. Dawson, of ditto; Mr. E. Dawson, of Ingthorpe, Rutlandshire; Mr. J. Harris, of Hinton, Berks; Mr. J. Haradine, of Needingworth, Hunts; Mr. C. Large, of Broadwell, Oxon; Mr. R. Dudding, of Pantons, Lincolnshire.

The best Pen of 5 long-woolled Ewes and their Lambs.

Prize of 10 sovereigns, adjudged to Rev. J. Lintot, of Hemingford Grey, Hunts., for his Lincoln and Leicester ewes, with their lambs, bred by Mr. R. Daintree, of Hemingford.

The other competitor was—Mr. J. Linton, of Hemingford Grey, Hunts.

[This statement is taken from the printed award, but it appears to us there must be some error.—*Ed. M.L.E.*]

The best Pen of 5 long-woolled shearling Ewes.

Prize of 10 sovereigns, adjudged to Mr. E. Smith, of Charlbury, Oxon, for his pen of 15 months old, improved Oxfordshire shearling ewes, bred by himself.

The other competitors were—Mr. R. Pratt, of Spelsbury, Oxon; Mr. J. Harradine, of Needingworth, Hunts.

CLASS IX.—PIGS.

Judges, Mr. Wilkie and Mr. Oakden.

The best Boar.

Prize of 10 sovereigns, adjudged to Mr. Barnard, M.P., of Gosfield Hall, Essex, for his 1 year and 4 months old boar, of the improved Essex breed.—[This animal is from the stock of Mr. W. F. Hobbs, to whom the next prize is awarded.—*Ed. F.M.*]

The other competitors were, Mr. W. F. Hobbs, of Marks Hall, Essex; Mr. W. J. Norris, of Radwell, Herts; Mr. J. Woodard, of Stanton, Suffolk; Rt. hon. Lord Western, of Felix Hall, Essex; Mr. H. Handley, of Culverthorpe, Lincolnshire; Mr. Thomas Gibbs, of the corner of Half Moon-street, Piccadilly, London; Rev. A. Peyton, of Doddington, Cambs.; Mr. T. N. Catlin, of Chillesford, Suffolk; Mr. R. Ayres, of Guilford, Beds.; Mr. W. Hammond, of Fenstanton, Hunts.

The best Sow.

Prize of 5 sovereigns, adjudged to Mr. W. F. Hobbs, of Mark's Hall, Coggeshall, Essex, for his 3 years old sow, bred by Mr. Francis, of White Colne, Essex.

The other competitors were, Rt. Hon. Lord Braybrooke, of Audley End, Saffron Walden, Essex; Mr. Thomas Gibbs, of the corner of Half Moon Street, Piccadilly, London.

The best pen of 3 Pigs, of the same litter, above 4, and under 9 months old.

Prize of 10 sovereigns, adjudged to Mr. G. W. Kirkby, of Eppingbury, Essex, for his three 36 weeks old pigs, bred by himself.

The other competitor was Mr. T. N. Catlin, of Chillesford, Suffolk.

EXTRA STOCK.—BEASTS.

The most noble the Marquis of Exeter, Burghley Park, Northamptonshire, Durham bull calf, 7 months old, bred by himself; his grace the Duke of Norfolk, a fat Devon heifer; Mr. J. Putland, of Firle Place Farm, Sussex, heifer 4 years old; Mr. W. Bryant, of Newmarket, Suffolk, short-horned bullock, 5 years old commended; Mr. T. Wing, of Thorney Abbey, Cambs., Hereford ox, 4 years old, bred by himself; Mr. R. W. King, Brinkley, Cambs., short-horned heifer, 2 years and 2 months old, bred by Mr. Holland, of Worlaby, Lincoln.; Mr. R. W. Kings, of Brinkley, Cambs., short-horned ox, 4 years and 3 months old, bred by Mr. King, of Hornsby, Lincolnshire; Duke of Norfolk a fat Devon heifer, 54, awarded.

HORSES.

Mr. R. N. Bacon, of Thorp Hamlet, Norwich, chestnut gelding, 3 years old, bred by G. Rising, of Martam, near Yarmouth, Norfolk; Mr. John Warsop, of Alconbury Hill, Hunts., nag horse, 2 years and 1 month old; Mr. W. Batty, of Cambridge, entire Shetland pony; Mr. T. N. Catlin, of Chillesford, Suffolk, cart mare; Mr. Walter Vipan, of the Hermitage farm, Haddington, Isle of Ely, Cambs., gelding, 2 years and 3 months old; Mr. Thomas Teverson, of Great Wilbraham, Cambs., nag mare and foal, the sire of foal belonging to Mr. Read; Mr. Thomas Teverson, of Great Wilbraham, Cambs., nag colt, the sire of foal, belonging to Mr. T. Robinson, of High Wycombe, Buckinghamshire; Mr. Thomas Teverson, of Great Wilbraham, Cambs., 2 fillies, 2 years old, the sire of fillies, property of Mr. T. Robinson, of High Wycombe, Bucks.; Mr.

R. Daintree, of Hemingford Abbots, Hunts., three cart mares, 3 years old, and one cart mare 5 years old, all bred by himself; Mr. Thomas Hall, of Cottenham, Cambridgeshire, cart mare, 6 years and 2 months old, bred by himself; Mr. H. Cross, of Boyton Hall, near Stowmarket, Suffolk, a Suffolk cart mare, 5 years and 6 months old; and a Suffolk cart mare, 6 years and 6 months old.

SHEEP.

The other exhibitions of Sheep were—

Mr. E. Lythall, of Foleshill, Warwickshire, Leicester ram, 4 years and 4 months old, bred by himself; Mr. E. Lythall, of ditto, Leicester ram, 3 years and 4 months old, bred by himself; Mr. Shillito, 3 fat two-shear South-down wethers, bred by himself; Mr. S. Webb, of Babraham, Cambs., shearling Southdown wether, 15 months old, bred by himself; Mr. S. Webb, of ditto, shearling Southdown wether, 15 months old, bred by himself; Mr. S. Webb, of ditto, shearling Southdown wether, 15 months old, bred by himself; Mr. H. J. Adeane, of Babraham, Cambs., 3 wether Southdown sheep, 25 months old, bred by himself; Mr. R. Pratt, of Spelsbury, Oxon, 5 improved Oxfordshire shearling wether hoggets 15 and a-half months old, bred by himself; Mr. W. Umbers, Jun., Wappenbury, Warwick., Leicester shearling ram, 17 months old, bred by himself; Richard Daintree, Esq., of Hemingford Abbots, Hunts.; Hon. H. W. Wilson, of Diddington, Norfolk, Southdown shearling ram, 16 months old, bred by himself; Mr. T. White, pen of long-woolled wether hoggets, 15-and-a-half months old, bred by himself; His Grace the Duke of Norfolk, pen of Southdown wethers; Mr. E. Dawson, 6 rams; Mr. T. E. Pawlett, of Tinivel, Rutlandshire, Leicester shearling ram, 16 months old, bred by himself; Mr. T. E. Pawlett, of ditto, Leicester ram, 5 years old, bred by himself; Mr. T. E. Pawlett, of ditto, Leicester ram, 4 years old, bred by himself; Mr. T. E. Pawlett, of ditto, Leicester ram, 3 years old, bred by himself; Mr. T. E. Pawlett, of ditto, shearling Leicester ram, 16 months old, bred by himself; Mr. S. Shillito, of Barrow, 3 fat two-shear Southdown wethers; His Grace the Duke of Norfolk, pen of Southdown wethers; Mr. Charles Large, of Burwell, Oxon, fat Oxfordshire long-woolled ewe.

PIGS.

Rev. D. Gwilt, of Ickington, Suffolk, 3 pigs; two of them 21 weeks, and one 40 weeks old, bred by himself; Mr. T. Webb, of Hildersham, Cambs., sow pig, 22 weeks old, bred by Mr. W. Webb, of West Wickham, Cambs.; Rev. A. Peyton, of Doddington, Cambs., 4 sow pigs, 9 months old, bred by himself; Rev. A. Peyton, of ditto, a sow pig; Rev. A. Peyton, of ditto, fat pig, eighteen months old.

SEED WHEAT.

Mr. G. Kimberley, of Trotworth; Mr. B. Wilton, and Mr. Samuel Jonas, the judges appointed to examine and decide on the respective merits of the White Wheat shown for the premium of 50 sovereigns, as also the Red Wheat shown for the premium of fifty sovereigns, selected for trial, according to the Society's conditions, Colonel Le Couteur's Bell Vue Talavera, grown by himself, at Belle Vue, Jersey; and Mr. John Ellis's Drewitt's improved Chidham Wheat, grown at his farm, at Send, in Surrey, as the best samples of White Wheat.

THE SHOW YARD,

was opened to the public at 7 o'clock on Wednesday morning, at which hour a great number of persons were anxiously waiting for admission. Of the cattle we have already given a complete list. The exhibition of implements was large and interesting.

MESSRS. RANSOME'S EXHIBITION.

The ploughs, though various in their forms and the purposes for which they are intended, were not

dissimilar in the principle on which they are constructed; for in all, the object of the makers appears to have been to effect such an arrangement as should best combine strength with lightness, together with such an adaptation of the several parts, as to render them effective in work, easy of management, and economical in use; to this may be added the great convenience which will be found from the parts being all so fitted to each other, that when they require to be replaced, either from wear, or accident, no time need be lost, as each new part will exactly fit and take the place of the old one, and may be exchanged without difficulty by the ploughman himself.

To most of the ploughs there was a considerable variety of mould-boards; for however well any one shape may suit a particular soil, or produce a certain description of furrow, yet the nature of soils is so various, the depth of ploughing and the mode of laying the furrows so different, that no one mould-board will suit all circumstances. To meet this, the frames, and bearing parts of these ploughs were so constructed, and the couplings which attach the mould-boards to them so contrived, as to admit of the several shapes being applied, from the simplest wedge-like form to those with the most convex or concave surfaces.

Although in the formation of ploughs for different localities science has not always held her proper place, it must nevertheless be admitted, that under great varieties of soil, difference of seasons, the condition of the land, and depth of ploughing, practical experience, and attentive observation, have done much towards the furtherance of the object desired; and it is to the hints of farmers themselves, and gentlemen interested in agricultural pursuits, that Messrs. Ransome must feel in a great measure indebted for the celebrity which their ploughs have obtained, and which has been kept up by unremitting attention.

LISTS OF PLOUGHS AS NUMBERED ON THE STAND.

—1. Suffolk swing plough, with the improved coulter and fastening. The difficulty usually attendant on setting the coulter with wedges, is by this plan completely obviated. The coulter may be raised or lowered, set to land, or from land, placed more or less slanting, or in any other direction by a very simple contrivance, as shown on the plough. 2. Belgium plough.—The mould-board of this plough is formed upon a mathematical principal, suggested by W. L. Rham, Rector of Winfield, Berks. 3. Double furrow plough.—This is made after the plough invented by Lord Somerville, for turning two furrows at one and the same time. 4. Double furrow plough, of a lighter description than the last-mentioned, and made at the suggestion of P. Pusey, Esq. 5. Northumberland ridge plough. 6. Double tom, or moulding plough. 7. West India plough, for forming trenches for planting canes. 8. West India plough, for ditto. 9. West India banking plough. 10. West India beading plough. 11. Bean drill plough. 12. Bedfordshire wheel plough. 13. Oxfordshire plough. 14. Rutland plough, made at the suggestion of R. W. Baker, Esq., of Cottesmore. 15. Plough with wheels, with frame made close on the land side, and may be used either with or without wheels. 16. Plough with wheels, with frame open on the land side, and on a very simple construction. 17. Hertfordshire plough, with wheels used on a stony soil. 18. Plough with wheels, similar to one at No. 15, but differing in the wheel fittings. 19. Plough, same as at No. 16, but with the improved coulter and fastening. 20. Scotch plough, with cast mould-board, patent case-hardened

share and wheels. 21. Rutland plough, with improved coulter and fastenings, and lever to the land wheel. 22. Plough, marked F.F. with wheels. 23. Hertfordshire and Hampshire swing plough. 24. Surrey plough. 25. Swing plough, double handles, for general use. 26. Ditto, ditto. 27. Lincolnshire swing plough.—This was made for a gentleman (B. Millington) of Sleaford, for the purpose of introducing the improved iron-work, and the patent case-hardened metal shares on the ploughs, commonly used in Lincolnshire. 28. Lincolnshire swing plough, an improvement made on the one at No. 27., under the direction of the same gentleman. 29. Lincolnshire swing plough, similar to the one at No. 28, but rather heavier and stronger. [The Lincolnshire ploughs, described as above, at Nos. 27, 28, and 29, were made with Ransomes' irons, by Anthony White, of Sleaford.] 30. Swing plough, of simple construction. 31. Swing plough (F.F.) ditto. 32. Swing plough ditto. 33. Swing plough, Lord Western's mould-board. 34. Kent turn-rest plough. 35. Ditto. 36. Ditto. 37. Hertfordshire and Hampshire plough. 38. Ditto. 39. Essex wheel plough, complete. 40. Ditto, ditto. 41. Suffolk wheel plough, with gallowaes, wheels and coulter, and set of whippetrees, complete. 42. Essex wheel plough, with gallowaes, wheels and coulter, complete. 43. Norfolk wheel plough, with gallowaes, wheels and coulter complete. 44. Norfolk wheel plough, as No. 43, but of a lighter description. 45. Rackheath subsoil plough, Sir Edward Stracey's No. 1. 46. ditto stronger, ditto, No. 2. 47. Ditto, with riser iron, ditto, No. 2. 48. Ditto, subterranean plough, ditto. 49. Norfolk subsoil plough. 50. Suffolk skim plough. 51. Mole plough. 52. Skim plough, for subsoiling and cleaning. 53. Potatoe plough, for earthing up potatoes. 54. Norfolk turnip plough. 55. Ilce plough. 56. Suffolk swing plough, light, F.F. 57. Essex ditto. 58. Swing plough. 59. Swing plough. 60. Scotch plough. 61. Swing plough, close land-side. 62. Ditto, ditto, very light. 63. Suffolk swing plough. 64. Essex swing plough. 65. Norfolk wheel plough, without gallowaes. 66. Suffolk wheel plough, ditto. 67. Surrey plough, with one wheel. 68. Ditto, ditto. 69. Bedfordshire plough, ditto. 70. Swing plough, ditto. 71. One horse plough, ditto. 72. Swing plough, ditto. 73. Hertfordshire plough, ditto. 74. Ditto, ditto. 75. Oxfordshire plough, ditto. 76. Swing plough and lever to wheel. 77. Swing plough. 78. Universal ridge plough, shown in the form as when used as a double tom, or ridge plough. 79. Ditto, when used as a moulding-plough. 80. Ditto, when used as a horse-boe, or cleaning-plough. 81. Ditto, when used as a skeleton, or broad-share plough. The universal ridge plough is adapted to the several purposes of ridge-culture, and one plough admits of all the variations as described in 78, 79, 80, and 81. The silver medal of the Royal Agricultural Society of England, was awarded to John Clarke of Long Sutton Marsh, under whose direction the Universal Ridge Plough was made by J. R. and A. Ransome—[A very ingeniously contrived implement, which will be remembered as having had the silver medal awarded to the inventor at the last meeting at Oxford.] 82. Fen plough, new, and likely to be an acquisition to the fen farmers. 83. Swing plough. 84. Kent turn-rest plough. 85. Apparatus for subsoiling, which may be attached to common ploughs. 86. Skim coulters, for turning-in surface grass.

The ploughs at numbers 12, 14, 27 and 28 were from the same patterns as those referred to in the prize essay on ploughs, by H. Handley, Esq., and

numbers, 14, 22, and 31, were those of J. R. and A. R.'s make, referred to in the experiments made by P. Pusey, Esq., to whom they are indebted for the apparatus at 8-4, for subsoiling light lands at the same time that the plough is turning a common furrow, and which may be attached to any of the several varieties of ploughs, made by J. R. and A. Ransome.

Specimens of the case-hardened metal were shown in baskets near the ploughs.

The application of metal so hardened was first introduced into the manufacture of plough-shares, by the late R. Ransome, who obtained a patent for the same, and which formed almost a new era in the use of cast iron for this purpose.

Till this mode of hardening plough-shares was discovered, those of cast-iron were little used, and were very generally condemned from their wearing thick and with a bevel, which allowed of their passing over weeds instead of cutting through them. Since this improved mode of hardening plough-shares has been introduced, and where proper attention is paid to the quality of the iron, and the management of the process of thus tempering it, this complaint has been so far removed, that in those counties where their advantages are best known, they have almost entirely superseded wrought shares.

The use of the Patent Shares do not appear to be confined to the ploughs made by J. R. and A. R., they are equally adapted to, and are also much used on those made by others.

The Turn-rest ploughs, exhibited now of different forms and weight, but on these, J. R. and A. R. are engaged in conjunction with some of the agriculturists of Kent, in making a series of experiments, with a view to some improvements on these implements, as respects construction and lightness of draught.

The plough at No. 83, was one made from the pattern furnished to J. R. and A. R. by Wm. Smart, of Rainham.

A turn-rest plough, for two horses draught, is also now preparing.

In the number of ploughs which appear in the list as exhibited at the Royal Agricultural Society, at Cambridge, by J. R. and A. Ransome, they have had in view, as a subject of general interest to Agriculturists, to show some of the variations to which the plough in one manufactory alone has been carried, and it would not have been difficult greatly to have increased the number of these variations, had they gone into those changes they are constantly adding to. Suffice it to say, that a general assortment was shown, in which ploughs more or less differ from each other either in their construction, frame-work, or fittings.

MACHINES, &c.—In giving an account of the implements and machines exhibited at the Cambridge meeting, J. R. and A. Ransome appear to have paid much attention to the improvement of machines in common use. It is with pleasure we observe the growing assent to the proposition which experience has established—that good machinery, although somewhat more costly in the first instance, is the most economical in use.

Portable Thrashing Machine, to be worked by the power of four horses.—This machine is in a form familiar to agriculturists, and little need be said in explanation of its construction. J. R. and A. Ransome have paid great attention to the introduction of good workmanship, so as to combine durability with effective performance: to this end the large iron horse-wheel is turned true in a lathe at that

part upon which the friction wheel runs; and the requisite speed of the drum is obtained by three pairs of wheels instead of two only, as was formerly the case, but which was found to involve great loss of power and wear of the machinery. Considerable saving of power is also made by the use of a new form of tooth in the wheels which combines increased strength with decreased friction, and consequently greater durability: for which improvement the public are indebted to the mathematical investigations of two Cambridge Professors—Airy and Willis.

It is difficult to give correct ideas of the quantity of work that any agricultural machine will perform, from the varying circumstances attending the operation, and so much depending upon the skill of workmen. At the trial on the 14th, upwards of 60 bushels were thrashed in one hour, and it was interesting to observe, that this machine was fed (as may be supposed in dexterous style) by a young farmer and friend of the makers, from the neighbourhood of Ipswich.

The whole of this machine is carried on two wheels, and is particularly adapted to letting for hire, as it is a moderate load for two horses, and easily put down to work and removed afterwards.

Portable Thrashing Machine, to be worked by the power of two horses.—This machine is upon the same construction as the one described for four horses, but of smaller size.

Hand Thrashing Machine.—Intended for the power of four to six men, according as it is fed. The arrangement of the parts of this machine, and the mode of obtaining the required speed of the drum are novel, and calculated for the economical use of hand labour. This knocked out five bushels in fifteen minutes in nice order.

Ransome's Patent Chaff Engine.—This machine is upon a plan, for which J. R. and A. R.'s partner, Charles May, has just obtained a patent: it is intended to be worked by one or two horses. The motion is smooth, and the length of cut can be readily altered, there are three lengths of cut $\frac{1}{2}$ in. $\frac{3}{4}$ in. and $1\frac{1}{2}$ in. upon the machine shown, but any length of cut from $1\frac{1}{16}$ th of an inch to two inches may be had, by giving directions to the makers for that purpose.

It is particularly adapted for exportation, and for cutting cane tops on sugar plantations, as the working parts are entirely of metal, and cannot be affected by the heat of climate.

The power of cutting very fine is important, as it forms part of a novel plan of preparing gorse, and which would have been shown at this meeting, but from the patent not being secured until the 6th inst. J. R. and A. R. were able to complete the machine for sale.

A set of horse-work or driving power for one or two horses adapted to the above new patent engine. No. 14.—A small machine cutting one length only, and suited to gentlemen's stables. No. 13.—The same in size and principle as No. 14, but made entirely of metal, and adapted for hot climates. No. 8.—A large machine, like the above figure, cutting three lengths, which can be varied at pleasure, and suitable for establishments in keeping ten to fifteen horses or cows. No. 6.—The same in construction as No. 8, but larger, and can be worked either by manual or horse power. A set of horse-work or driving power for one or two horses, adapted to the No. 6 engine.

Biddell's Scarifier.—This is a very powerful implement for the purpose of cultivating land under a variety of circumstances, and bringing it into a

proper state of tilth, much more effectually and at less expense than can be done by the means generally employed for that purpose.

Biddell's Extirpating Harrow.—This is particularly adapted for cleaning pea and bean stubbles, breaking up such land as is too hard for the heaviest common harrows, and for bringing winter fallows into a fine state for receiving spring corn; it is also eminently calculated in working summer lands, for raising short grass to the surface, as well as for general purposes of fine tillage, and cleaning land. The tines of this implement in their work are only four inches apart, and as steel hoes of that breadth are made to fit the tines, close shallow hoeing may be well performed. The weight of this implement, at first sight, may appear an objection, but which, on trial, will be found to be advantageous. The weight is borne upon wheels upwards of four feet high, and consequently there is not that labour to the horses in drawing it that would otherwise be the case. A set of four-horse whippletrees, suited for Biddell's scarifiers and extirpating harrows. A set of three-horse ditto. A set of Suffolk harrows, best iron and workmanship. A set of ditto, ditto.

Portable Sheep Fold.—In the construction of the hurdles, which form this fold, strength and lightness have been studied. There was only one pair of wheels to each hurdle, and the whole may be moved with great facility by either a man or a lad. They may be instantly connected with each other, and when together form a strong fold. As a temporary division on gentlemen's grounds, these hurdles would not be unsightly. By the use of hurdles on wheels, the exceedingly injurious effect of setting common hurdles with stakes over land-drains is avoided. Sheep-racks of wire, with mangers under them, are made to correspond with these hurdles, and form part of a fold or division of a field. The food, whether it be cut turnips or mown vegetable crops, being put in one side, while the sheep feed on the other. The facility of moving these folds upon hard clover land, affords the opportunity of mowing clover and other artificial young grasses for sheep—thus carrying the system of soiling to flocks as well as to herds.

A new assortment of long hurdles for a fold, with sheep racks and troughs.—This attracted a great deal of attention.

Grass Mowing Machine.—This is for cutting grass on lawns, pleasure grounds, and bowling greens, and is so easy to manage, that persons unpractised in the art of mowing, may in a short time use it with ease.

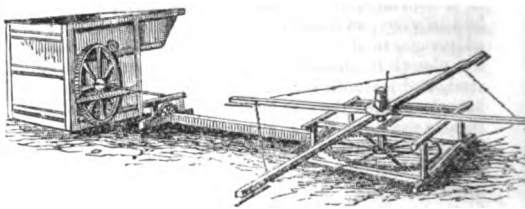
Corn stack pillar; horse drag rake; sack barrows—four sizes; steam presser; bean mill, with a set of extra rollers for malt; Norfolk crusher, for breaking malt; Suffolk ditto, ditto; oil cake breakers—two sorts; barrow turnip cutter; Finlayson's patent harrow; Gardner's patent turnip cutter; ditto on wheels; Salter's patent winnowing machine—the Patentees were present showing this machine.

Hay Bay Beater.—This machine is for the purpose of taking the dust out of mouldy hay, previous to use or being cut into chaff.

MESSRS. GARRETT'S EXHIBITION.

R. Garrett and Son, Leiston Works, Saxmundham, Suffolk, had a most remarkable display of implements, proving their great ingenuity and skill in the production of the most useful machines for the purpose of agriculture, viz.—Seven different varieties of drilling machines, two thrashing machines varying in principle, varieties of chaff-cutting en-

gines, dressing machines, winnowing machines, cake crushers, ploughs, bean mills, and a hay making machine; also an improved horse power for cutting chaff, grinding corn, &c., with the means of instantly stopping the progress of the work without checking the movement of the horse. The proportions, application, quality of workmanship, and materials in these implements were truly gratifying, and received the commendation of the most distinguished noblemen and eminent agriculturists present. R. G. and Son also exhibited admirable models, the work of much time and ability, of a corn, seed, and manure drilling machine, perfectly proportioned to the sixty-fourth part of the full cube size, shewing all the most recent improvements, viz.—Swing steerage, screw regulator, and press bars. This drill, with all the apparatus as shown, is the most complicated at present manufactured, and will deposit with accuracy corn and manure, or seed and manure, through the same or separate coulters. Two men are sufficient to work it. The use of the swing steerage is to guide the depositing coulters to the greatest nicety, so as to make the rows of corn regular in returning, and the same improvement materially assists in drilling on the tops of ridges. This machine is easily altered so as to be applicable to either broad, stretch, or ridge work.—Also of a four horse power thrashing machine made to the sixty-fourth part of the full cube size, showing likewise all the most novel improvements, viz., on whole iron wheel with segment attached, and an entire iron drum with five beaters. It is confidently asserted that this machine will thrash any kind of corn without injuring either the kernel or straw, at the rate of from thirty to fifty bushels per hour, while the horses do not walk more than two and a quarter miles per hour, the machinery being timed to the greatest nicety by three motions. This thrashing machine is the most economical in use; it may be taken up or put down (with the assistance of the lever purchase) by two men in half an hour, and it is so thoroughly adapted for removal, that when loaded on the travelling wheels, two horses can convey it from place to place. Seeds may also be drawn by the addition of another concave and grating. The following is a representation of the machine.



And of a lever corn drill made in the same proportions and in the most simple form. These are all so convenient in size for removal, and so plain and intelligible, that they cannot fail greatly to forward the adoption of such useful implements in the most remote districts.

Mr. Seatter exhibited an improved winnowing machine, for which the Royal Agricultural Society awarded a silver medal at the meeting at Oxford last year. Mr. Smith, of Peasenhall, near Yoxford, Suffolk, some very excellent drills, which attracted great attention.

One of the Marquis of Tweeddale's drain tile machines was exhibited, and great surprise was expressed by those present at the celerity with which the tiles were made.

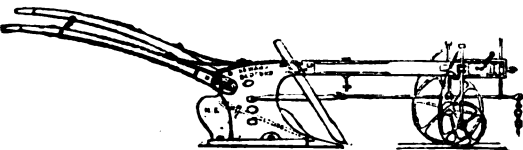
Amongst the machines, Messrs. Bond, Turner,

and Hammond, of St. Peter's Foundry, Ipswich, exhibited some excellent drills for corn, seed, and manure; others for sowing corn and seeds at the same time, and some for corn and seeds separately. A very superior and powerful thrashing machine of four horse power; the manner it performed its work was particularly admired, and which thrashed in a superior manner twenty-four bushels of wheat in twenty minutes, being more by one-fifth, than any machine realized in the same period of time. Also, some excellent oilcake breaks adapted for sheep, beasts, and manure of various sizes, which were very highly approved, and amongst the variety of goods exhibited, and which our limits prevent our noticing separately, we might notice plough for subsoils and other purposes, new constructed iron sledges, chaff engine, dressing machines upon Cooch's principle, malt and bread mills, &c. And a premium was given by the Society for their new invented machine for crushing gorse.

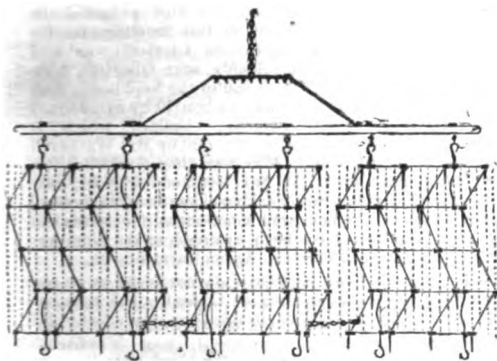
Messrs. Perry, Barrett, and Exall, of Reading, Berks, brought for inspection a great variety of ploughs and other agricultural implements. The Dibbling Machine, shown by Mr. Wedlake, of Hornchurch, Essex, was surrounded by crowds during the meeting, who expressed themselves highly pleased with its ingenious construction.

There was also a good assortment of implements brought by Mr. Howard, of Bedford; among which we observed his Patent Plough, which appeared to be constructed on new principles. The shifting draught is a great improvement, and the light plough was exceedingly strong.

Here follows a cut representing this plough.

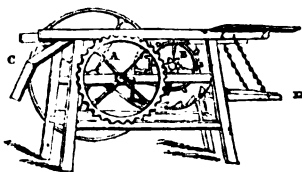


Mr. Howard's Patent Harrows attracted considerable notice from their durability and the excellent manner they performed their work. We cannot speak otherwise than in the highest terms of these implements. The following is a cut of Mr. Howard's harrow:—



The portable hand-power thrashing machine, shown by Mr. B. Urry, of Newport, Isle of Wight, was decidedly one of the most excellent machines of that description we ever had the pleasure to witness. The apparent ease with which it was worked, and the large quantity of wheat threshed out in a limited period, were the theme of universal approbation. In

order to give our readers an idea of the machine, we insert the following wood-cut—



SIDE VIEW OF ABOVE CUT.

- A. refers to a cog wheel running in a small pinion
- B. Threshing cylinder.
- C. Canopy to prevent the grain flying about, which closes up when not at work.
- D. Standing board, which closes up, with joints.

Mr. W. Crosskill, of the Iron Works, Beverley, Yorkshire, sent for exhibition his celebrated Iron Clod Crusher, and it affords us the highest gratification, both from the practical knowledge of its working, and the well-grounded conviction that every farmer ought to be in possession of one, to perceive that the crowds of agriculturists who surrounded it, pronounced it one of the best machines they ever witnessed.

Mr. Cottam was present with his excellent Dynamometer.

The following were exhibited by W. Drummond and Sons, of the Agricultural Museum, Stirling, Scotland, and were admired for their utility and elegance of workmanship. Their expanding horse-hoe, reaping scythe, and grain sample weighing-machine, drew especial attention—Smith's subsoil plough—Iron swing-plough—One-horse green crop grubber, with double mould boards and scufflers to fit—Expanding one-horse-hoe, and harrow for drill culture—Diamond drill harrow—Sawing machine to cross cut logs for fuel, &c.—Portable weighing machine, weighs from 3oz. to 4 cwt.—Ayrshire cheese press—Hand-stubble rake on wheels—Improved reaping scythe—Machine for twisting three straw ropes at a time—Implements for the various kinds of drains—Cast iron stack pillar, to prevent vermin getting up—Pheasant and poultry feeder—Improved oval churn—Milk cooler, and search made of zinc—Improved ring for leading cattle—Instrument for probing hoven cattle—Cattle probang—Corn balance to give the weights of any kind of grain from a sample—Spurred shovel for filling and turning potatoes—Clips for dragging out land-fast stones—Improved latch for a park gate.

The following manufacturers also exhibited implements:—

Mr. W. W. Kilpin, of Bedford, turnip machine; Mr. W. Young, of Yarlington, horse hoe; Mr. J. Clark, of Long Sutton, turnip cutter; Mr. S. King, of Buckland Farringdon, plough; Messrs. White and Leith, of Worksop, mill for bruising gorse, &c.; Mr. W. Grounseil, of Louth, a drop drill scarifier, &c.; Mr. J. Woods, of Stowmarket, a considerable variety of agricultural implements; Mr. Maynard, of Whitlesford, Cambs., various drills, weighing machines, dressing ditto, spreading ditto, &c.; Mr. Balls Garrett, hand-threshing machines, chaff engines, winnowing machines, model steam apparatus, ploughs, &c.; Messrs. Barrett and Exall, of Reading, various ploughs, winnowing machines, chaff engines, mills, rollers, &c.; Mr. Smith, of Peasenhall, a drill, called Lord Western's drill; Mr. W. F. Hobbs, of Mark's Hall, Essex, a fold sheep trough, and a fold hurdle; Messrs. R. Headley and Sons, various implements; Mr. A. Hayward, of Grinstead Green, Essex, subsoil ploughs, and scarifier; Mr. R. Horn-

aley, of Grantham, portable horse powered threshing machine.—Mr. R. Hornsby, of Spittlegate, a patent drop drill; Mr. H. W. Wilson, machine for scaling turf for burning; Mr. T. F. Salter, of Great Hallingbury Hall, patent winnowing machine; Mr. J. Smyth, of Peasenharn, various kinds of drills; Mr. T. Wedlake, of Horncchurch Foundry, haymaking machine, dibbling machine, chaff engines, turnip drills, ploughs, &c.; Mr. W. Block, of Peasenharn, drills, &c.; Messrs. T. Gibbs and Co., Seedsmen, &c., of the Corner of Half-Moon Street, Piccadilly, London, a Belgium carrot hoe; Mr. T. Hinkvale, of Over Norton, ploughs of various kinds; Messrs. Bond, Turner, and Harwood, of Ipswich, drills of various kinds, threshing machines, dressing ditto, ploughs, mills, rollers, carts, &c.; Mr. J. Wick, of Hadleigh, model of dipping apparatus, also a washing ditto; Messrs. Smyth and Son, of Smifling, Suffolk, various drills; Mr. Constable, a machine for drawing trefoil and clover.—This machine has been submitted to several of the most opulent farmers in Cambridgeshire, and has been found to answer the purpose better than any hitherto invented, as it does not injure either the seed or the chaff, and will draw from 48 to 60 bushels of trefoil seed per day, and upwards of 30 bushels of clover seed. As the Society had offered a prize for a machine for bruising gorse or furze, for feeding cattle, the following description of the one exhibited by Mr. Dell, of Dudswell, may be found interesting:—This machine is composed principally of cast iron, with a circular platform, the inner and outer side of which is raised, the bottom of the circle is grooved after the manner of a millstone. The outer raised edge is cogged or toothed like a rack, in this circle or trough is an iron roller, through which a shaft is introduced and connected with a pin in the centre of the machine; to the other end of the shaft a poney or ass is to be attached, as in other mills worked by horse power. The particular improvement, however, in this machine, and which enables it to perform much more work than any other bruising machine now in use, is the addition of a pinion, cogged in the same manner as the outer edge of the trough above-mentioned, and attached to the outer end of the roller. The addition of this pinion, working in the rack above-mentioned, causes the roller to revolve nearly as many more times in going round the trough, as it could otherwise do, were the rack and pinion absent, which gives it a very effective grinding motion, by which a roller of four cwt. will perform considerably more work than one of a ton weight, working by simple pressure only. The implements of one of the most new and useful invention exhibited was, in our opinion, a machine for the manufacture of draining tiles, for which a patent has been obtained by Mr. R. Beart, of Godmanchester. This very useful machine, which is sold complete for 12 guineas, must prove most valuable to the large farmer, as it will enable him to provide his own tiles, in a superior manner, and at a considerably decreased expense. It is extremely simple; much more so, in fact, than the well-known machine of the Marquis of Tweeddale. We also recommend to the notice of those who use Bigg's sheep-dipping composition, a newly constructed dipping-tub; it combines two very valuable desiderata—the prevention of many accidents which occur in this necessary operation, and also a considerable saving of the liquor employed.

We were much gratified by the exhibition of roots, seeds, &c., among which we could not help viewing with particular satisfaction the stand of Messrs. Thomas Gibbs, and Co., Seedsmen, of the

corner of Half-moon street, Piccadilly, London, whose celebrity in the agricultural world made us anticipate a splendid shew, and every individual who visited the shew-yard must acknowledge that that anticipation was fully realized, and thus the farmers of this country had an opportunity of inspecting samples of articles in which they must take the greatest interest, in which they are particularly concerned, and the importance of which must be felt by every one engaged in agricultural pursuits. Among other articles of general attraction on the stall of Messrs. Thomas Gibbs, and Co., were samples of grass seeds for laying down land to permanent pasture, dried specimens of the same in their mature state, exceedingly large roots of mangelwurzel of the growth of 1839, a Belgium carrot, and a large collection of agricultural seeds. We also observed on the stand of Messrs. Thomas Gibbs, and Co., specimens of wheat exhibited by Colonel Le Couteur, so well known by every one taking an interest in the different varieties of wheat.

At the sale held in the yard on the following day, conducted by Mr. Wetherell of Durham, expressly engaged by the society for that purpose, a great number of all classes of stock were sold, and at high prices. This mode of sale cannot fail to be of the greatest acquisition both to buyer and seller, where gentlemen from all parts of the kingdom attend, and who can purchase stock from the most eminent breeders, of the different descriptions to best suit the climate and soil on which he lives.

Referring to the exhibition in the Cattle yard, we may observe, that as a whole, it was superior to that of last year. Nevertheless, without being hypercritical we think that some of the classes of animals were open to remark, as well as the awards on them. We certainly speak under correction, but we do think that one of the decisions, in the first class, is not free from doubt.

In speaking of the merits of the animals in this class, we cannot omit to notice the general admiration of the splendid yearling Bull, Clementi, belonging to R. M. Jacques, Esq., of St. Trinians, near Richmond, Yorkshire, which obtained the first prize in his class, beating ten others. Mr. Jacques has a superior herd of the improved Short-horns, and has been a successful exhibitor of Clementi, at the Richmond and Barnard Castle Agricultural Shows. He also obtained the premium of Ten Sovereigns at this meeting, for the best short-horned yearling heifer. Clementi was bred by Mr. Parkinson, of Lee Fields, near Ollerton, Nottingham, got by Cossack, (1880 in the herd book, dam Cassandra, by Miracle), and was bought by Mr. Jacques in Sept. 1839, for 300 guineas; Collard, which is own brother to Clementi, was bought by Mr. Wetherell at the Babworth sale, in May last, then 8 months old, at 200 guineas, for R. M. Fox, Esq., of Fox Hall, near Rathowen, Ireland. Mr. Parkinson has an extensive and select herd of the improved short-horns, for several of which, premiums have been awarded at the Nottingham, Lincoln, and Ollerton Agricultural Shows.

The second class Herefords do not come up to our estimate of the same class at Oxford. The cow belonging to Sir H. Hoskins, in this class, was a beautiful animal.

The same remark applies to the third class Devons. The award of the Judges in this class excited much observation: we do not pretend to offer an opinion on the merits of the different beasts, but we venture to suggest that in future it would be a means of avoiding dissatisfaction if one of the three Judges in each class should be a breeder of, or have had his attention more especially directed to the particular breed in that class.

The fourth class, for all breeds, was decidedly worse than last year.

The fifth class, Horses, was very superior to last year; especially the cart-horses, which were very good.

The sixth class, Leicesters, were good. Mr. Bennett's shearing ram was greatly admired.

The seventh class, Southdown Sheep, was so excellent as to scarcely admit the expectation of our seeing it better.

The eighth class was also good, and Mr. Large was deservedly successful.

The ninth class, Pigs, attracted considerable attention, especially Lord Western's, Mr. Hobbs's, and Mr. Barnard's.

We embrace this opportunity to correct an error in one of our contemporaries, who stated that a Bull belonging to Earl Spencer was greatly admired. Earl Spencer purposely avoided exhibiting, having accepted the office of Steward of the Yard. The mistake arose no doubt from the animal being described as one of his Lordship's breed.

We should not omit to mention that Mr. Pratt, of Spelsbury, Oxfordshire, having challenged all England to show five wether sheep, fifteen months old, for 50*l.*, the challenge was accepted by Mr. White, of East Hall, Kent, for 20*l.*, and was decided on Wednesday in favour of Mr. Pratt. The judges were Mr. Stunt, of Higham, near Rochester, and Mr. Carpenter, of Hall Farm, near Chipping Norton.

The price of admission from the opening of the yard at seven o'clock on Wednesday morning until twelve was 2*s.* 6*d.* each person, and after that period until seven in the evening, 1*s.* each; the sum received during that time was 1,480*l.*; and on the following morning about 140*l.*, making on the whole, 1,620*l.*; being about 450*l.* more than was received at Oxford.

PORTABLE SHEEP-FOLD.—An improved portable sheep fold, in which one of the hurdles also serves the purpose of a trough or rack, was exhibited by Mr. W. F. Hobbs, and sold.

MR. JONAS WEBB'S TUP SHOW.

At the conclusion of the ploughing match, on Tuesday, a very great portion of the spectators visited Mr. Webb's farm, at Babraham, among them his Grace the Duke of Richmond. The noble Duke expressed the great pleasure he felt in inspecting Mr. Webb's flock, and regretted that his duties at Cambridge prevented him from being present at the letting. Previous to and during the letting Mr. Webb kept open house. About half-past two the letting commenced, and was carried on with very great spirit, many of the tups fetching high prices. In the course of the afternoon the Earl of Hardwicke arrived, accompanied by the distinguished guests visiting at Wimpole. Among them we observed the Duke of Rutland, the Marquis of Salisbury, Lord Ashburton, the Marquis of Downshire, Lord Barrington, Lord Charles Manners, the Hon. E. T. Yorke, Sir G. Seymour, Rt. Hon. T. Croker, Mr. Denison, M.P., and Mr. Vincent, who appeared highly gratified with their visit. Having remained about half an hour, they departed from the place of letting and proceeded to Mr. Webb's house to partake of some refreshments, and pay their respects to Mrs. Webb, whose excellent arrangements in providing for her guests, and the courtesy evinced by her towards all, was the theme of universal commendation.

About 200 tups were disposed of, which was nearly the whole number offered, and among the most distinguished hirers of them we heard the

names of the Duke of Manchester and the Earl of Hardwicke mentioned. The Duke of Richmond, we understand, offered Mr. Webb 100 guineas for a ram lamb, which the latter refused.

THE DINNER.

At six o'clock, the letting having concluded, a party consisting of between three and four hundred sat down to a cold dinner, the Hon. ELLIOT YORKE, M.P., in the chair. The collation was prepared in a spacious barn, with an additional marquee, beautifully decorated with evergreens and flowers, exhibiting much taste and ingenuity. The excellence of the dinner was the theme of universal praise, and although so large a number sat down, and many hundred others had been regaled in Mr. Webb's house during the day, yet the provision was ample.

The Hon. CHAIRMAN first proposed "The Queen," and said there was no gentleman present who would not join him in cordially drinking that toast, and all he was sure felt thankful to Providence for averting that blow recently levelled at her Majesty, whose life was dear to them all (*the toast was given with loud cheers*).

The CHAIRMAN next gave His Royal Highness Prince Albert, and then the Queen Dowager and the rest of the Royal Family. After that followed the health of the Lord Lieutenant of the county. (*Loud cheers.*)

E. HICKS, Esq. said, that the Hon. Chairman being a relative of the noble Lord Lieutenant felt a delicacy in proposing that this toast should be given with three times three. But he was sure that every one now present would be happy to join in that cheer, for there was no man more esteemed in the county to which he had the honour to belong (*the toast was received with great cheering*).

The CHAIRMAN said he hoped that in drinking the next toast they would charge their glasses to the brim, for it was one that highly deserved it. It was the health of their worthy host. The hospitality that they had met with that day, was beyond all precedent, and he hoped that Mr. Webb would meet with the reward he so richly merited. His occupation was alike honourable and ancient. They had read that Abel was a keeper of sheep, the sons of Meschid, in the land of Moab, were shepherds and keepers of sheep. It was an honest and useful occupation, and in discharging the various duties connected with it, Mr. Webb was exemplary. He was entitled to their highest praise for the benefits he had conferred upon the breeders of sheep in general, and he had no doubt his example would be the means of stimulating others to follow in the same track. He would give the health of Mr. Jonas Webb with three times three. (*Loud and continued cheering.*)

Mr. JONAS WEBB, who acted as Vice-president, returned thanks. He said he was afraid it would be considered a poor compliment when he said he had not been paying attention to the observations of the hon. Chairman. He was much gratified to find so many friends around him—many from a great distance—and many who were customers as well as friends. He thanked them most sincerely both for their attendance and their custom, and hoped he should have the pleasure of seeing them another year. (*Cheers.*)

The CHAIRMAN said that being within hearing of Mr. Adeane's house, he thought they could not do better than drink his health. He was quite sure the company would heartily respond to it. He regretted Mr. A. was not present upon that occasion, as that

gentleman was always ready to do justice [to Mr. Webb as a good tenant and an enterprising man, and he thought Mr. Webb would bear testimony with him (Mr. Yorke) in saying that, as a landlord no better existed. He would therefore give the health of Mr. Adeane.]

The CHAIRMAN said, the next toast was the health of the noble Duke, the chairman of the Royal Agricultural Society of England. (*Cheers.*) His grace was a sterling friend of agriculture, and as hard a working man as any he then saw before him. (*Cheers.*) He sincerely wished that the noble duke, instead of having offered the one hundred guineas for Mr. Jonas Webb's best lamb had been fortunate enough to pay it. (*Three times three, and loud cheers.*)

The Rev. Mr. Cox proposed the next toast. He could have wished it had fallen into other hands, but being requested, it would ill become him to refuse, after partaking of the kind hospitality of Mr. Webb, and witnessing his excellent stock. The toast he was about to propose was "Success to Agriculture," which he considered to be the great stay and bulwark of this nation. (*Cheers.*) He came from Essex, than which no county was better cultivated. They had derived great benefit from the cultivation of seed; next in point of importance, was the growth of wool. But as farmers, they might depend on it that nothing could benefit them and this country so much as the growing of large quantities of corn. (*Cheers.*) Farming, was now, he was rejoiced to say, in a flourishing state; but their mainstay was in producing large quantities of wheat by improved cultivation—an object societies like that now assembled at Cambridge, was so well calculated to effect. The toast was then received by acclamation.

The CHAIRMAN then proposed, with much humour, "Mr. Perkins (of the celebrated firm of Barclay and Perkins,) and the Brewers of the metropolis." (*Cheers.*)

Mr. PERKINS returned thanks. He little thought he was to receive such a compliment; it had come upon him quite unawares, and therefore he trusted they would excuse him if he did not return thanks so elaborately as he could wish. But the benefit between them was mutual—for if the farmer did not grow the barley, the brewer could not use it. The brewer could do nothing without the farmer, and he hoped that the farmer would be able to produce a good barley, and the brewer would produce a wholesome beverage. He made it his business to travel through the country every year, and he regretted that in coming here he had not witnessed such good barley crops as he could wish. But still he had witnessed quite enough to convince him, that the gentlemen who surrounded him were good farmers. (*Cheers.*) He heartily thanked the honourable chairman, the worthy host, and the company around him, for the honour they had done him.

Mr. HICKS proposed the Bishop and Clergy of the Diocese, which was given with cheers.

The CHAIRMAN then gave the health of Mr. Putland, and the gentlemen who had come from a distance.

Mr. PUTLAND, (of Firle, near Lewes) spoke to the toast. He derived great gratification from the toast they had just heard, and the way in which it was received, in a double point of view—first for the handsome way in which his name had been mentioned, and next for the honourable mention of the growers of the county of Sussex. It would be of very little use, however, for them to grow South-downs, if they did not meet with encouragement from their customers in Suffolk, Essex, and Cam-

bridgeshire, and he hoped he should convince his friends when he had the pleasure of seeing them at Lewes fair, that he met them as fairly, as honourably, and he trusted as hospitably as they had been that day treated. (*Cheers.*)

Mr. JONAS WEBB then gave the health of their Chairman, the Hon. E. T. Yorke, and he thanked him for his kindness and condescension in taking the chair on that occasion—*three times three.*

The CHAIRMAN, in returning thanks, said it was peculiarly gratifying to him to witness the enthusiastic manner in which his health had been received by the company present, consisting as it did of a great number amongst them who were strangers both to him and the county. He considered it no condescension on his part to take the chair upon that occasion, but, on the contrary, he begged most distinctly and emphatically to state that it was from inclination that he had done so. He would conclude in the words of a celebrated poet—

"I am a beggar, for I am poor in thanks;
But from my heart I thank you."

Mr. BAWSHEN then proposed the health of Mr. Taylor, brewer and malster, of Saffron Walden, a gentleman extensively connected with agriculture in this as well as the adjoining counties.

Mr. TAYLOR said if they expected a long speech from him they would be disappointed. It was true he was intimately connected with the malting interest of this and the neighbouring counties, and if they would but produce a good quality, his honourable friend on his right, (Mr. Perkin,) would take it all from them. He was happy to say that beer-drinking increased, and he was sure it would soon, but at present they did not grow anything like enough of barley, and if they would but grow good barley and plenty of it, there would be no fear of their obtaining remunerating prices. (*Cheers.*) He had been invited to meet them here at this period, but why he knew not, for he knew nothing about sheep, although he highly esteemed his friend, Mr. Webb. He sincerely thanked the company. (*Cheers.*)

Mr. Putland then gave "Mrs. Webb, and the Ladies of Cambridgeshire."

Mr. J. WEBB returned thanks.

The CHAIRMAN then proposed the health of Mr. Webb, sen., and congratulated him upon having a son so worthy of his sire.

Mr. WEBB approached the table amidst the loudest and most enthusiastic cheering, then in few, but emphatic words, very feelingly returned thanks.

Mr. JONAS WEBB proposed the health of Mr. Purvis, agent to the Duke of Manchester.

Mr. PURVIS trusted he should be pardoned for the inadequate way in which he should return thanks for so unexpected an honour. He came to this show not so much to benefit Mr. Webb as to benefit his noble employer, and he should be gratified if they had so enterprising a man as his friend, Mr. Webb, in the little county of Huntingdon, to which he belonged; they should not then, he trusted, be so far behind in agriculture as they now were. At all events he endeavoured to do his duty by taking into that county some of Mr. Webb's excellent South-down sheep (*Cheers.*)

The CHAIRMAN, in proposing the next toast, said, he wished he had half the voice, and possessed half the importance of the great man whom he was about to introduce to them. He had himself in the course of the evening been taken for Mr. Elliot Smith; he could almost wish that half the body of that gentleman were transferred to him, in order to make up

for his own deficiency, and diminish the superabundance of that well-known and highly respected individual. The Chairman concluded by proposing the health of Mr. Elliot Smith, and may he long live and continue in the same useful and honourable profession.

Mr. PUTLAND then proposed the health of his friend, Mr. Teverson.

Mr. TEVERSON returned thanks, and spoke very highly of the treatment he received in the county of Sussex. He hoped he should be honoured with the company of all who were here present, and their friends in September next, and he would be able, he trusted, to show them some shearing ewes to match with the splendid tups shown by their worthy host that day. (*Cheers.*)

The CHAIRMAN then left the chair, which was taken by Mr. Webb's brother, and many gentlemen gathered round him to prolong the festivities of the evening.

THE CORN LAWS.

TO J. W. CHILDERS, ESQ., M.P.

SIR,—You have lately published a tract entitled "Remarks on the corn laws," in which you strongly urge the necessity of their repeal. As these "Remarks" are addressed to the public, I apprehend they are open to public criticism; and therefore make no apology for addressing this letter to you in reply to the opinions therein expressed.

Your "Remarks" do not seem to contain anything in the shape of argument, but are made up chiefly of a reiteration of the assertions and common places, which have been so industriously set forth by the indefatigable gentlemen of the anti-corn law league.

You say, (page 5) "I think the effects of the corn laws are very much exaggerated by both parties. I think they do not, in the long run, make corn much dearer; and I venture to prophecy, that whenever they are done away with, the change will be comparatively slight, and that rents and prices will continue *in statu quo* much more than could at first be imagined." Also, in page 6, "I imagine, therefore, that the diminution in the price of corn to the agriculturist will hardly be perceptible. It is also my opinion that corn never can be had very cheap in England."

If these surmises be well grounded, it is folly on the part of the agriculturists, or any other class of people, to desire a continuance of the corn laws, under the idea that they are at all benefitted by them. And it is equally foolish on the part of the anti-corn law league and the manufacturer, to give themselves such a world of trouble to procure the repeal of the corn laws, with the expectation of its causing such a reduction in the price of food, as will enable them so far to reduce wages, (or as they term it, the cost of production, that they may be enabled to compete successfully with the manufacturers on the continent. If these opinions be correct, the hopes of one party and the fears of another would be groundless. We are inclined to think, however, that the majority of the anti-corn law party regard the repeal of these laws with very different expectations.

Knowing scarcely anything more of the subject than what they have learned from the sophistries and misrepresentations of the hired advocates of repeal, it cannot be expected that they should thoroughly comprehend all the bearings of a subject which puzzles

and perplexes the most learned and talented men, both in and out of parliament. The great majority of the petitioners for repeal are the converts of sound rather than of reason, and clamour for a repeal of the corn laws, only from the delusion that the pleasing and seductive sound of *cheap bread* means bread easy of acquisition. That the money price of corn would be reduced by repeal we firmly believe: yet, at the same time, it is our strong conviction that bread, instead of being easier of acquisition, would be still more difficult for the poor to obtain. I will now endeavour to state some of the grounds on which the agriculturists may apprehend, that a repeal of the corn laws would reduce the price of corn below the remunerating point; and to controvert your assertion, that "corn never can be had very cheap in England."

[In any references we have to make to other publications, we shall endeavour to confine ourselves to those writers who are opposed to us in their views on this question, in order to avoid any accusation of giving garbled statements in favour of our own opinions.]

In the fourteenth number of the anti-corn law circular, a quotation is given from a report of the corn markets contained in the *New York Herald*, of October 1, 1839, from which we extract the following:—"Tennessee wheat is sold on the coast of the United States at 6 dollars 12½ cents per quarter, or only 3s. 3d. per bushel. "In Indiana the bushel of wheat is 2s. 8d., in Ohio 2s. 3d., in Virginia 2s. 1d., in Wisconsin and Michigan 2s. 1d., in Tennessee 1s. 6½d., and in the Western States from 10d. to 6½d., or 4s. per qr."

In the previous number of the anti-corn circular, it is said, "We learn from the most recent accounts that in Georgia abundance of the finest wheat is to be had at 2s. 6d. per bushel, or only 20s. per qr. Suppose the cost of transport to amount to only 50 per cent., then each quarter of fine Georgian wheat would be laid down at the very door of our factories at 30s. per qr."

The newspapers of the day occasionally give the average price of wheat in England, and in different parts on the Continent. We extract the following table of prices, given in "Wilson's Influences of the Corn Laws," page 11:—

Year.	Average price in Great Britain.	Average price in Dantzic.
1824	62s. 0d.	22s. 9d.
1825	66 6	23 3
1826	56 11	23 1
1827	56 9	22 5
1828	60 5	24 4
1834	46 2	25 5
1835	39 4	23 0
1836	48 6	28 7
1837	55 10	29 0

Average of the } nine years. }	54 8½	24 7½
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We see, then, that the average price of wheat in England, during the nine years above quoted, was upwards of 30s. higher than the prices at Dantzic for the same time. These tables also shew the prices in Königsburg, Brandenburg, Pomerania, and other Prussian ports, to be even lower in these years than at Dantzic.

Now, if we had had a perfectly free trade in corn during this period, should we have had the same prices of corn in England?

On referring to the *Mark Lane Express* of last week (June 15), I find it stated in the usual article on the "Foreign Corn Trade," that, by letters from

Dantzic, of the 6th instant, "vessels were not so plentiful as they had been; and small ships commanded 4s. per qr. freight for London, and 4s. to 4s. 4d. per qr. for other parts of the eastern coast of England. Our Stettin advices are also of the 8th of June. A good many vessels had arrived there, seeking freights; at 4s. per qr. a few had been taken up for the East." We are not able to state what additional charges there may be on wheat from Dantzic or other parts of Prussia, but on making enquiries respecting the expense of conveying wheat from Hamburg to Hull, we are informed, on the very best authorities, that the present freight for wheat is 2s. 6d. per qr.; insurance, $\frac{1}{4}$ per cent., or about 3d. per qr.; landing and all other charges, 6d. per qr. On particularly enquiring if this was the total cost of importing wheat from Hamburg, our informants assured us they knew of no other charges than what we have stated above, amounting in the whole to 3s. 6d. per qr. If, however, we are stating anything that is incorrect, it will be in the best place that can be for being contradicted. A variety of exaggerated statements are circulated of the heavy costs of importation; but what will our readers think when we tell them that we have been positively assured by more than one person on whose veracity we can rely, that they have on some occasions known wheat to be imported from Hamburg at the low freight of 1s. per qr.? The only item of cost in importing corn from Dantzic, or any other Baltic port, to which corn from Hamburg is not subjected, is, we believe, the Sound dues, 6d. per qr. The following accounts will therefore, as far as we know, be nearly correct:—

	From Dantzic.	From Hamburg.
Freight.....	4s. 0d.	2s. 6d.
Insurance.....	6	4
Sound dues.....	6	none
Loading, &c.....	6	6
	<hr/> 5 6	<hr/> 3 4

We must bear in mind that the merchants seldom incur any charges for factorage, or commission. It would seem, then, that if we had an entirely free importation of corn at this moment, we could not reasonably expect the price of wheat here to be more than 3s. or 6s. per qr. above the Dantzic prices, nor more than 3s. or 4s. above the Hamburg prices. But there is another thing that we must not forget, namely, the superiority of the Dantzic and other foreign wheats over those of English growth, which will amply cover the cost of conveying it to the English markets. In Radford's "Hull Commercial Report and Price Current" the average current price of English and foreign was, for

May.	English, new....	55	66	68
	Foreign, free....	65	69	75
	Difference..	10	3	7

Which shews a difference in favour of foreign of more than the cost of conveyance to our markets. As a further proof of this we need only mention the well-attested fact, that merchants contrive to adulterate their parcels of foreign wheat, by mixing with it English wheat of the same apparent quality, thereby obtaining a foreign price for the whole. It is not that there is that difference in the respective qualities as an article of food, but the foreign, on account of some peculiarity of the climate or soil on which it has been grown, is less productive of coarse, or what the millers term, offal. If, then, we are to have a free trade in corn, and should the prices of wheat in

Dantzic be hereafter reduced to what it averaged during the nine years we have quoted above (24s. 7½d.), would any one expect that the average price of wheat in our markets would be, as in the nine years we have spoken of, 30s. per qr. above the prices at Dantzic? or could there be any reasonable grounds for expecting that it would be 30 pence above it?

With reference to freights, I would further observe, that the distance from London to the principal Scotch and Irish ports which ship corn to that place, is greater than that from the ports of Holland, Germany, and Prussia, whence the bulk of our foreign importations are derived. It is quite clear, therefore, that the Scotch and Irish (the price of whose grain is ruled by what their surplus produce will command in the English markets) could not possibly, under a free trade in corn, obtain one farthing more than the people on the coast of Holland, Germany, Prussia, the lower ports of the Baltic, and the eastern coast of France, even if their grain was equal to that of the foreigners in quality. We are informed by two of the principal corn merchants in the West of England that the freights for wheat from Lynn, Wisbech, and Boston, to Wakefield, being the three places from which the latter receives its largest supplies, is from 2s. 6d. to 3s. per qr. The district in which Manchester and many other of the large manufacturing towns are situated, being on a substrata of coal, is necessarily barren. These places are consequently obliged to procure their corn through Liverpool, Wakefield, Leeds, &c., which imposes an additional 5s. 6d. per qr. on all corn shipped to Manchester from the western ports of England. Grimsby, Louth, and even the neighbouring town of Driffield, in Yorkshire, cannot send wheat to Manchester for less than 5s. 8d. per qr., a sum which would freight corn to Hull or London from almost any port on the western coast of continental Europe. One of my informants says, "It costs fully as much to get corn from Lynn to Wakefield, as it does from Hamburg to Goole." And as the cost of conveyance from Wakefield to Manchester is to the same amount, it follows that it costs twice as much to get corn from Lynn, Boston, Wisbech, and other adjacent ports on the eastern coast, to Manchester, as it does from Hamburg to Goole. It is, perhaps, not necessary to say more in order to show that the repeal of the corn laws would ultimately bring the price of English and foreign corn to the same level in our own markets: what that level would be, is not so easy to ascertain. Foreign noblemen and capitalists have occasionally offered to contract for the supply of large quantities of foreign wheat, to be delivered in English ports, at 30s. per quarter.

After the two or three very unfavourable seasons which have caused the late advanced prices, some people may be so far misled as to suppose it quite improbable that the price of wheat can ever be reduced to 30s., thinking, with yourself, that "corn never can be had very cheap in England." The seasons, however, as experience has shown us, generally run in courses. After two or three very unproductive harvests, we may have a like number prolific to a like extreme. It is idle to talk of this country not being able, in moderately productive years, to grow a sufficiency of corn for its own consumption; for it is only four or five years ago that the abundance of our home produce was such, that the best of wheat in our neighbouring Yorkshire markets would not command more than 32s. or 34s. per quarter; and many thousands of quarters were even used for pig's feed.

However rapidly the population of the country may increase, it is quite certain that the improvements in farming have latterly more than kept pace with it; and the science of farming need not necessarily be further advanced to enable the soils of this country, in moderately favourable seasons to produce a sufficiency of food for every individual of its population. Indeed, there are few persons at all acquainted with an agricultural district, who cannot point out some particular farm which is managed in such a way that if the productive powers of every other farm in the country were called forth in a similar manner, there would be food of home produce, enough and to spare, for any increase of population that could take place for centuries yet to come.

It is an established maxim that supply and demand regulate prices; and whenever we may be favoured with two abundant harvests in succession, the supply must inevitably exceed the demand, and the prices be depressed accordingly. I shall not be contradicted when I say, that the produce of the crops have, in different years, sometimes varied fully one-third, when the bulk has been perfectly equal in point of appearance. Tooke, in his work on "High and low prices," very properly notices the extraordinary deficiencies caused by "wetness in May, cold frosty nights in June, from boisterous winds when the plant is under the blossom process, and from want of sun, and heat, when the grain is formed in the ear of the plant," and the contrary weather which, of course, produces an opposite result. The general similarity of the seasons throughout the corn growing countries of Europe is thus noticed by the same author. "Mr. Lowe, in his very useful and valuable work on the present state of England, has the following remarks, in the justice of which I perfectly concur, on the prevalence of a general similarity of the seasons in Europe, within certain latitudes. 'The public, particularly the untravelling part of the public, are hardly aware of the similarity of temperature prevailing throughout what may be called the corn country of Europe—we mean Great Britain, Ireland, the north of France, the Netherlands, Denmark, the north-west of Germany, and in some measure Poland, and the north-east of Germany.' It is then perfectly reasonable to expect, that whenever Providence may favour us with two or three productive harvests in succession, the foreigners will be visited with the same abundance; and although our own produce would then be amply sufficient for our own consumption, and the prices reduced accordingly, yet, if we should have free importations at the same time, we should be liable to be inundated by the surplus produce of the foreigner and suffer a further depression of prices. It is generally believed that should our corn laws be repealed, the foreigner, under the erroneous expectation of an increased demand on our part for his produce, would be induced to extend his tillage, the productive powers of which are almost illimitable. And when the almost boundless extent of the countries from which our occasional deficiencies are supplied, are taken into consideration, it cannot fail to strike us, how small a quantity from each, would make up a whole which would, in a moderately productive year of our own, completely swamp us: for a nation may be poor in superfluity as well as in want. A bee may be drowned in the honey of its own gathering, and on which it subsists; and a people may be ruined by abundance of food.

We cannot forbear giving an account of the imports into Great Britain of wheat and wheat flour in 1831, specifying the countries where they were imported, and the quantities brought from each.

	Qrs.	Bush.
Russia	454,584	1
Sweden	71	2
Denmark	55,967	6
Prussia	296,286	5
Germany	218,507	4
The Netherlands	30,249	4
France	103,700	5
The Azores	22	2
Spain	154,671	1
The Canary Islands	1,082	4
Italy	253,295	5
Malta	13,339	7
Ionian Islands	249	3
Turkey	6,215	4
Cape of Good Hope	2,184	4
Mauritius		6
East Indies	5,490	4
Van Dieman's	45	5
British North American Colonies	218,327	2
West Indies	3	4
United States	463,418	7
Chill and Peru	140	7
Guernsey, Jersey, Alderney & Man }	9,242	1
Foreign Produce	14,265	5
Total....	2,311,362	2

The foregoing was one of the largest, if not the very largest, years of grain importation we have had; and yet we see how small is the quantity we derive from any one country. Russia and the United States, from which we have received nearly double the quantity that we have done from any other, yet from neither of these have we imported half a million quarters of bread corn. And what is this from the boundless territories of these countries?—perhaps one ounce per acre. If Russia and America can in ordinary years produce enough for their own consumption, their surplus produce in very productive years, would, if transported to England, be sufficient to smother us. But whether these two countries, and the twenty others from which we import corn in our occasional need, will extend their tillage when our corn laws shall be abolished, we are not prepared to say. Certain, however, it is, that the present advanced price of corn in the continent of Europe, must, ere long, give way. Extremes like this infallibly produce re-action, by one way or other; and however low the prices may have been in Germany, Prussia, and other places, they will undoubtedly sooner or later, experience a like depression again.

It does not follow that an extra production of bread corn in the poorer states of Europe will be met by an increased demand for consumption in these states. The producers of this corn, however plentiful and cheap it may be, can generally no more afford to consume the food they produce, than the children of Bedfordshire can afford to wear the lace they manufacture. The peasants in many parts of the continent are in a state of vassalage or slavery; nearly the whole of the corn their labour produces is taken to the market, and the money proceeds constitute the revenues of the noblemen and great landed proprietors. It seems clear, then, that if any thing should arise to stimulate the productiveness of the neighbouring continental states, whether a repeal of our corn laws or an improved system of agriculture, we should soon see the price of wheat at Danzig, and other foreign ports, down to what it was in the nine years we first quoted, when it averaged only 24s. 7½d. per quarter.

We have already shown, that under a free trade

in corn, the price of home-grown wheat in our market scarcely could be higher than the average price of wheat in Danzig, on account of the superior quality of the latter; which according to the present rate of freights would be fully equal to the cost of transmission. Should then, the time ever arrive, when speculators may be able to land foreign wheat in England, at, or near 30s. per quarter, a host of adventurers will then be found to hoard large stocks in British warehouses to hang in *terrorem* over the home grower. The same fact will operate to retard the purchases of the consumer. Thus the English farmer, through need, consequent on the reduced order of his produce, must press his grain on the market. The speculator, hopeless of prices getting higher, or from pecuniary embarrassment, will be compelled to do the same. The purchaser, seeing the supply exceed the demand, will naturally become cautious; and to what the prices may be reduced under a system of free trade, after a course of plentiful years, is impossible to calculate.

Tooke, in his work before referred to, gives the following calculation, by Gregory King, of the effect of quantity on prices:—

"We take it, that a defect in the harvest may raise the price of corn in the following proportions—

Defect.		Above the common rate.
1-tenth	Raises the price.	.3-tenths
2-tenths		.8-tenths
3-tenths		1.6-tenths
4-tenths		2.8-tenths
5-tenths		4.5-tenths

Tooke, in corroboration of the above rule, says, "There is some ground for supposing that the estimate is not very wide of the truth, from observation of the repeated occurrence of the fact that the price of corn in this country has risen from 100 to 200 per cent. and upwards, when the utmost computed deficiency of the crops has not been more than between one-third and one-sixth of an average." The same is also the opinion of 'Porter,' and was that of Dr. Franklin. If the foregoing calculation be anything near correct, the converse of it will hold good, which may be thus shown, taking the five-tenths to represent an average crop, and exhibiting it as a whole number; the increased quantity or surplussage in tenths; the price represented in shillings and pence—thus s. d.

Average crop, or 1.0 sup- posed to sell per qr. for.	66	0	present price.
Increased to . . 1.2 would be .	45	8	
.. .. 1.4	31	3	
.. .. 1.6	21	8	
.. .. 1.8	15	8	
.. .. 2.0	12	0	

If we are to have a free importation of wheat, I apprehend we must have the same of every other description of grain, and the same reduction in the price of these as of wheat, according to their accustomed proportions of value. But to bring down the price of agricultural produce generally, animal food as well as vegetable food, it is not necessary that there should be a free trade in any thing but wheat; for whatever reduction may take place in the price of that article, every thing else that the farmer produces will be similarly affected. Wheat is, strictly speaking, the standard of value. However we may confound or misapply the terms, the precious metals are only the representatives of value.

Wheat being the staple commodity of life, has been, and must continue in all ages, the only true standard of value. Whatever laws or regulations we may have, every other description of grain must,

in the course of years, bear a proportionate price relative to that of wheat; something like that on which the scale of duties in our present corn bill is calculated, namely, wheat, 72s.; rye, peas, and beans, 45s.; barley, 40s.; and oats 31s. It will be quite unnecessary to enter into an argument or explanation to prove this, which must be self-evident to every one. A word from Adam Smith, however, may not be out of place. In "Wealth of Nations," book 6, chap. 5, Dr. Smith says, 'Corn regulates the money price of all the other parts of the rude produce of the land, which in every period of improvement must bear a certain proportion to that of corn. Woollen or linen cloth are not the regulating commodities by which the real value of all other commodities must be finally measured and determined; corn is. The money price of labour, and of every thing that is the produce of land, or of labour, must necessarily either rise or fall in proportion to the money price of corn.'

These then, Sir, are some of our reasons for thinking, in opposition to your assertion, that corn not only can, but soon will, if the corn laws be repealed, "be had very cheap in England." In the few remaining observations that we may make on the contents of your "Remarks," we shall regard the question of repeal as involving only the expediency or inexpediency of reducing the price of wheat from 60s. to 30s. and consequently every other description of agricultural produce in the same proportion. If the subject were brought forward in this or some other definite form, by Mr. Villiers or Earl Fitzwilliam, in parliament, the question would be much simplified, and the discussion thereon greatly facilitated. Whereas, the way in which it is now introduced as a motion for a committee, or to take into consideration the 9th of Geo. IV. &c., is so lax and indefinite, to give rise in discussion to all kind's of heterogeneous and contradictory opinions. One is for a fixed duty, another for a fluctuating one; some are for Canning's scale, others for Wellington's; another quarrels with the average system, while another applauds it; some are for further restrictions, and others for entire freedom of trade; besides fifty other conceits, shewing the numberless eccentricities which are discovered by wanderings in the mystified and ridiculous mazes of modern political economy.

If the subject were introduced in the shape of a resolution to this effect—"That a reduction of the money price of bread corn would materially conduce to the welfare and prosperity of the industrious classes," the question would then be clear and simple. Should a resolution like this be agreed upon, it would then be soon enough to consider the means by which the desired reduction of prices might be brought about. JOHN ALMACK, Jun.

STATISTICS OF FRANCE.—The Minister of Commerce has published the fourth volume of the "General Statistics of France," being the first part of the division, Agriculture. It comprises the agricultural statistics of the forty-three departments situated east of the meridian of Paris. The following are some of the principal facts to be remarked in it:—"The eastern half of France comprises more than 26 millions of hectares, and nearly 16 millions of inhabitants; it is divided into 177 arrondissements and 19,000 communes. More than a third of the surface is occupied by different crops, and nearly one half, if nursery grounds, osier grounds, and fallow lands be taken into calculation. The gross average produce of corn is 84½ millions of hectolitres per annum; of potatoes 56 millions; and dry vegetables

two millions. Vineyards occupy 900,000 hectares of the soil, and produce upwards of 20 millions of hectolitres per annum, valued at 231 millions of francs, or 263 millions, including the brandy. There are annually made in the same district 3,360,000 hectolitres of beer, and 461,000 of cider. Beetroot occupies under 37,000 hectares; colseed, 116,000 hectares; textile plants (flax, hemp, &c.), more than 100,000 hectares. Mulberry trees, only lately introduced, give 42 millions of francs in produce, of which they are the primary source. The annual value of the total average produce may be thus tabularized:—

Grain.....	950 millions of francs.
Wine.....	264 ditto
Beer and cider.....	52 ditto
Different crops, &c. ..	430 ditto

Total 1,696

In very productive years the total produce is much above 2,000 millions of francs. The quantity of land occupied in pastures of all kinds is 10½ millions of hectares, of which only ½ are in natural and artificial meadow lands. Wood occupies 5½ millions of hectares, producing only 137 millions of francs per annum. The principal species of domestic animals especially belonging to agriculture amount to 25 millions of heads, of which horned cattle form less than one-fifth, sheep 3-5th, swine, 1-10th, and horses 1-20th, representing altogether a capital of 877 millions of francs. A complete agricultural return for France has been attempted at various times since the reign of Louis XIV., but never successfully till the present period, when it has been commenced, and nearly completed, under the auspices of the system of government established in France by the Revolution of 1830. The second volume, completing the agricultural returns, will appear at the end of the current year. The parts of this immense work already published include the General Introduction—Territory and Population—Foreign Trade—and the present division of Agriculture. The remaining volumes, including all the departments of public administration, are in course of compilation.

ROYAL AGRICULTURAL SOCIETY.

At a Council held on Wednesday, June 24, present, His Grace The Duke of Richmond, President, in the Chair, Marquis of Downshire, Lord Portman, Lord Camoys, Thomas Raymond Barker, Esq., John Bennett, Esq., M.P., Thomas William Bramston, Esq., M.P., Edward Buller, Esq., M.P., French Burke, Esq., Colonel Challoner, John W. Childers, Esq., M.P., Hon. Robert Clive, M.P., James Dean, Esq., William Stratford Dugdale, Esq., M.P., Thomas Duffield, Esq., M.P., Humphrey Gibbs, Esq., Edward Greathead, Esq., Henry Handley, Esq., M.P., William Charles Harland, Esq., M.P., Sir John Johnstone, Bart., Francis Pym, Esq., Sir Robert Price, Bart., M.P., Rev. W. L. Rham, William Shaw, Esq. The following gentlemen were elected new members of the Society.

Merrington, D. W., Fulbourn, near Cambridge
 Vaughan, Col. Wright, 2, Chester-street, Grosvenor-place
 Rogers, William, Harold, Bedfordshire
 Rogers, William, Chillington, Bedfordshire
 Parser, William, Caple, Bedfordshire
 Sanders, John, High-street, Bedford
 Ansley, Gilbert, Houghton Hill, Huntingdon, and Wyndham Club, London
 Inghall, C., Swineshead, Boston, Lincolnshire
 Gadsdon, Richard, Heckington, Sleaford, Lincolnshire
 Harbin, George, Newton House, Yeovil
 Combermere, Viscount, 22, Portman-square, and Combermere Abbey, Nantwich, Cheshire

Hall, Jno. Hancock, 3, Essex-court, Temple, and Risley Hall, Derby
 Caldicott, C. M., Myton House, near Warwick
 Hall, J. O., 1, Brunswick-row, Queen-square
 Granger, Joseph, Stretham, Cambridgeshire
 Hall, Thomas, Colnham, Cambridgeshire
 Ficklin, T. J., Cambridge
 Buller, Frederick, Cherry Hinton, Cambridgeshire
 Brown, Samuel, Stanley St. Leonards, Stroud
 Humphries, James, Cawley, Ckelttenham
 Neems, John, Frocester, Stroud
 Barclay, Robert, the Grove, Tooting, Surrey
 Webb, T., Hildersham, near Cambridge
 Webb, J., Horselheath, near Cambridge
 Johnson, Robert, Burwell, Cambridgeshire
 Johnson, Henry, Burwell, Cambridgeshire
 Polimore, Lord, Polimore, near Exeter
 Skipworth, Sir Gray, Newbold Hall, near Coventry
 Cooper, Rev. T. J. Griffin, Arkesdon, Bishops Stortford
 Wyatt, Edward, Upmarden, near Petersfield, Hants
 Dodd, Thomas, Reinham, Sittingbourne Kent
 Lambert, Rev. Burges, Misterton, Crewkerne
 Brown, William, Winterbourne, Stoke, Salisbury
 Fellows, Henry Arthur, Eggesford, Chumleigh, Devon
 Croote, William, Lassford, Chumleigh, Devon
 Craig, Gibson, M.P., Edinburgh
 Peck, Rev. E. M., Wyton, near Huntingdon
 Cheere, Rev. Geo., Papworth Hall, Caseton, Cambridgeshire
 Stebbings, W., Durham Grange, Norfolk
 Hodson, John, Upwell, Cambridgeshire
 Berry, John, Upwell, Norfolk
 Pope, Richard E., March, Isle of Ely, Cambridgeshire
 Pottinger, J., Sonning, near Reading
 Brown, John, Pear-tree House, Elm, Isle of Ely
 Anderson, Richard, Long Sutton, Wisbeach
 Dickens, Francis, Adisham, Wingham, Kent, and Magdalen College, Cambridge
 Girdlestone, Sied, Stillington Hall, Wansford
 Eaton, R. J., M.P., Hitchworth Park, Newmarket
 Nicholls, S., Offord D'Arey, near Huntingdon
 Smith, E. Osborne, Old Broad-street, London
 Babington, C. Carsdale, St. John's College, Cambridge
 Jermyn, Rev. Dr. Bitten, L.L.D., Longstanton House, Cambridge
 Burdakin, Rev. Jas., M.A., Fellow of Clare Hall, Cambridge
 Carter, T. S., Ballards, near Croydon
 Burroughes, Rev. Jer., Lingwood Lodge, Norwich
 Morgan, Philip, Defynnock, Brecknockshire
 Page, Thomas, Ely, Cambridgeshire
 Fryer, John, Chatteris, Cambridgeshire
 Little, H., Whittlesey, Peterborough
 Little, John, Whittlesey, Peterborough
 Dobede, John, Soham, Cambridgeshire
 Jeany, George, Bottisham, Newmarket
 Johnston, John, Cronan, Farnham, Surrey
 Vipan, Walter, Hermitage, Haddenham
 Walbey, Thomas, Sandon, Herts.
 Langley, Thomas, Upton, near Shiffnall, Salop.
 Thisfield, William Barrow, Much Wenlock, Salop.
 Green, John Badger, Heath, Salop.
 Ashdown, George, Tettenhall Wood, near West Hampton.
 Wood, Henry, Allscott, near Broseley, Salop.
 Phillips, Richard, jun., Brockton, near Shiffnall, Salop.
 Smith, William, Sutton Mill, near West Hampton.
 Davis, Thomas, Little Wenlock, Wellington, Salop.
 Norton, John, Little Dun, near Stafford.
 Booth, William, Priorsley, near Shiffnall, Salop.
 Aston, John, Seesdon, near Wolverhampton.
 Baker, John, Bridgeworth, Salop.
 Sibley, Robert, Kingsborne Green, Harpenden, Herts.
 Packe, Rev. Augustus, Welton Rectory, Loughborough.
 Lyon, Edmund H., Horstead House, Norwich.
 Holmes, Rev. John, Brooke Hall, Norwich.
 Wagner, G. H. Malcolm, Herstmonceuse, Battle, Sussex.

Walkias, Rev. F., King's Walden, Hitchin, Herts.
 Hayden, James, Arrington, Cambridgeshire.
 Wilkinson, George, Harperley, Durham.
 Hallstone, Rev. John, M.A., F.R.S., Vicarage, Bottisham, Cambridge.
 Wright, J., jun., Dudwis, Barton, Norwich.
 King, Rev. John, Cutcombe, Dunster, Somerset.
 Youngman, William, Girtton, Cambridgeshire.
 Hall, Wilson, Landbeach, ditto.
 Hall, William, ditto, ditto.
 Granger, John, Stretham, ditto.
 Iviatt, James, Cottenham, ditto.
 Iviatt, Robert, ditto, ditto.
 Minworth, G. Wakefield, Birmingham.
 Carter, James, Barton Hopwas, Tamworth.
 Dexter, Joseph, Bramcote, ditto.
 Vipian, John, Ely Sutton, near Cambridge.
 Saberton, William, Ely, Cambridgeshire.
 Copley, James, ditto, ditto.
 Evans, H. R., jun., ditto, ditto.
 Bradley, John, Blyth, Retford, Notts.
 Hodgkinson, Richard, Osberton Grange, Worksop, Nottinghamshire.
 Savill, John, St. Neots, Hunts.
 Kemp, Jesse, Utterby Grove, Louth.
 Rodwell, George, Burnham, Deepdale, Norfolk.

The Rev. W. L. Rham submitted to the inspection of the Council a specimen of winter Barley of an extremely prolific and hardy kind, grown on his farm at Winkfield, from seed transmitted to him from Belgium. It is the sort of barley known in France and Belgium as "Escourgeon," and a single seed of it produced 17 ears, containing an amount of nearly 15,000 grains of barley. The original seed was plump, round, and of a good colour, but rather inclined to be thick-skinned, and Mr. Rham considered this barley as the most prolific he had yet met with. Mr. Rham has presented to the society the volume of his "Outlines of Flemish Husbandry," and the Yorkshire Society the new part of their printed proceedings.

At a monthly meeting of the Council, held on Wednesday, July 1, present, Henry Handley, Esq., M.P., in the chair; the Hon. Robert Clive, M.P.; Thomas Raymond Barker, Esq.; Colonel Challoner; J. W. Childers, Esq., M.P.; James Dean, Esq.; Humphrey Gibbs, Esq.; Stephen Grantham, Esq.; George Hemington Harris, Esq.; W. Goodenough Hayter, Esq., M.P.; W. Fisher Hobbs, Esq.; Sir John Johnstone, Bart.; John Kinder, Esq.; Sir Charles Lemon, Bart., M.P.; Rev. W. L. Rham; Edward Aysbford Sandford, Esq., M.P.; William Shaw, Esq.; Walter Strickland, Esq.

The Mayor of Manchester, and Mark Phillips, Esq., M.P. for Manchester, attended the Council, the Mayor to express on the part of the town and corporation, and Mr. Phillips, on the part of his constituents, the satisfaction it would give them to receive the Society at Manchester next year, and the hope they felt that the next annual meeting in the country would be held in that town, where every effort would be made to render the meeting agreeable, and to promote the successful advancement of the great and national objects of the Society.

The CHAIRMAN returned the unanimous thanks of the Council to the Mayor and Mr. Phillips for this gratifying mark of their attention, and next Wednesday was fixed as the day when the determination of the Council on the place of meeting next year would be discussed and finally determined.

The following two new bye-laws, of which due notice had been given by Mr. Childers, were then passed:—

1. The place of meeting in country shall be settled by the Council at the first Wednesday in May, and declared at the anniversary meeting in the year preceding such meeting.

2. All prizes shall be settled by the Council at or before the last Wednesday in June the year preceding;

and no new prize shall be offered, or increase of an old one shall be made, after that time.

It was also resolved, that the Secretary shall give due notice to the Members of the Council of the day appointed to settle the list of prizes for 1841.

The Duke of Richmond proposed the Marquess of Douro, and David Barclay, Esq., the venerable Lord Lysedoch, as Members of the Society.

Sir Robert Bateson, Bart., M.P., of Belvoir Park, and Edmund Mac Donnell, Esq., of Glenarm Castle, were, on the motion of the Marquess of Downshire, elected Governors of the Society.

The following gentlemen were elected new Members:—

Algar, R. F., West Rudham.
 Ambrose, W. Cole, Quy, Cambridgeshire.
 Allsop, John, Basingthorpe, Lincolnshire.
 Browne, E., Silsoe, Beds.
 Barrett, G. A., Reading, Berks.
 Banks, Rev. J. S., Hemmingford Grey, Hunts.
 Bawyer, Thomas, Buckden, Hunts.
 Bawyer, Wm., Southoe, St. Neots.
 Bawyer, George, Deddington, Buckden.
 Beaven, James, Thornham Farm, Seend, Devizes.
 Curtis, John, Jun., West Rudham.
 Curtis, John, West Rudham.
 Chamberlin, Wm., Westby, Lincolnshire.
 Clowes, Francis, Hemaby, Norfolk.
 Cotes, Rev. C. Grey, Stanton, St. Quintin, Chippingham.
 Calthrop, Rev. Wm., Corpus College, Cambridge.
 Colville, Rev. A. A., Lincolnmere Rectory, Bury St. Edmunds.

Drake, Sir T. E., Nutwell-court, Devon.
 Dickinson, Thomas, Great Ponton Lincolnshire.
 Drummond, Rev. A., Charlton Rectory, Kent.
 Dawson, Richard, Withcall House, Louth.
 Eades, Francis, Cambridge.
 Ellis, Joseph, Threplew, Cambridgeshire.
 Ellis, G. Ingle, Skepreth, do.
 Ezall, Wm., Reading, Berks.
 Frere, P. H., Downing College, Cambridge.
 Floyer, J. Wadham, Ketaby House, Louth.
 Feummon, Charles, Beckford Hall, Tewkesbury.
 Fawles, Wm., Market Lavington, Devizes.
 Griffin, W. E., Wermington, Peterborough.
 Goodwin, S. C., Huntingfield House, Yoxford.
 Greetham, Thomas, Stainsfield, Wragby.
 Green, John, Grantham, Lincolnshire.
 Gibson, Thomas, Basingthorpe, Lincolnshire.
 Gibson, Richard, Belvoir Inn, Leicestershire.
 Goodwin, Shadrach, Hemel Hempstead.
 Horton, Richard, Audley End, Saffron Walden.
 Hall, Lieutenaut, Colcoel.
 Hurwood, George, Ipswich.
 Harris, Wm., Somerby, Grantham.
 Hand, Robert, Woodsthorpe, Lincolnshire.
 Haylock, John, Balsam, Cambridgeshire.
 Hammond, J. W., Wistaton Hall, Nantwich.
 Harlock, Wm., Ely, Cambridgeshire.
 Hicks, J., Walton Hall, Thorp, Essex.
 Josselyn, J. jun., Belstead, Ipswich.
 Jones, Wm., Harrington, Shiffnal, Salop.
 Lakon, Sir E. H. K., Ormesby, Great Yarmouth.
 Lynn, Robert, Stroxtan, Grantham.
 Lushington, Rt. Hon. S. R., Merry Hill, Watford.
 Langley, Smyth, M.P., Kelvedon, Essex.
 Meeson, John, Grays, Essex.
 McPherson, J., Lynn Regis, Norfolk.
 Martin, Henry, Littleport, Ely.
 Martin, Wm., Downham, Ely.
 Mytton, Thomas, Shipton Hall, Much Wenlock, Shiffnal.
 Newbett, Edward, Kimpton, Leicestershire.
 Padmore, Charles, West Rudham.
 Purkin, Wm., Withinfield, Essex.
 Phelps, Charles, Briggs Park, Ware.
 Pulnois, Wm., 12, Abbey Road, St. John's Wood.
 Pigott, Wm., Dulingham Hall, Newmarket.
 Pells, Edward, Culpho, Suffolk.
 Phillips, C., Margaret, Rootling, Essex.

Rous, Rev. T. Manners, 38, South Street, Park Lane
 Stilwell, James, Walton-on-Thames
 Scoffin, Charles, Stoke, Grantham, Lincolnshire
 Smith, John, Cambridge
 Sheldrake, R. E., North Hill, Colchester
 Surridge, I. J., Feering, Kelvedon, Essex
 Thorp, J. Sydney, Chippenham Park, Cambridge
 Townley, Rev. Gale, Beaupre Hall, Wisbeach
 Tredecroft, Henry, Warnham Court, Horsham, Sussex
 Vipan, Walter, Sutton, Ely
 Walker, Thomas, the Bank, Doncaster
 Widnell, Samuel, Grantchester, Cambridgeshire
 Wyles, Thomas, Little Ponton, Lincolnshire
 Wright, R. S., Downham Market
 Walbey, Henry Widdial, Bury, Herts
 Welchman, Robert, Hockley House, Southam
 Wilkin, Charles, Tolleshunt, Kelvedon, Essex
 Wood, John, Stowmarket, Suffolk
 Yate, Joseph, Madeley, Shiffnal, Salop

GOVERNORS.

Bateson, Sir Robert, M.P., Belvoir Park, near Belfast, and 30, Pall Mall
 McDonnell, Edmund, Glenarm Castle, Glenarm, Ireland, and Mivaris Hotel, London.

PRIZE ESSAYS.

The following adjudications of the Premiums in this department have been already made:—

To Mr. WILLIAM E. GEACH, of Tywardreath, Lostwithiel, Cornwall, the premium of Ten Sovereigns, for the best Essay on the Storing of Turnips.

To Mr. WILLIAM LINTON, of Sheriff-Hutton, near York, the premium of Twenty Sovereigns for the best Essay on the Admixture of Soils.

To Mr. M. M. MILBURN, of Thorpfield, near Thirsk, Yorkshire, the premium of Twenty Sovereigns for the best Essay on Early Spring Feed.

To Mr. CUTHBERT W. JOHNSON, of Gray's Inn, the Gold Medal for the best Essay on Plantations.

To Mr. CUTHBERT W. JOHNSON, of Gray's Inn, the premium of Ten Sovereigns for the best Essay on Gypsum as a Manure.

The premium for the best Essay on the Rotation of Crops for Heavy lands, is still under consideration. None of the remaining Essays were considered by the Judges as being of sufficient merit for a prize.

Communications were received from Lord Western, Mr. Davies Gilbert, Mr. Wilbraham Egerton, the Secretary of the Manchester Agricultural Society, and Mr. Schjölter, of Norway: and Mr. Rodwell, of Alderton Hall, presented a specimen of his Italian Ryegrass.

At a council held on Wednesday, the 8th of July, present, His Grace the Duke of Richmond, president (in the chair), Marquis of Downshire, Earl of Euston, Lord Portman, Lord Rayleigh, Lord Bridport, Hon. R. Clive, M.P., D. Barclay, Esq., J. Bennett, Esq., M.P., T. W. Bramston, Esq., M.P., T. R. Barker, Esq., J. R. Barker, Esq., Col. Chaloner, J. W. Childers, Esq., M.P., R. M. Gillies, Esq., Henry Handley, Esq., M.P., T. L. Hodges, Esq., M.P., P. Pusey, Esq., M.P., E. A. Sanford, Esq., M.P., W. Shaw, Esq., W. R. C. Stansfield, Esq., M.P., H. Wilson, Esq.

Neil Malcom, Esq., of Kilmartin, Lockgilphhead, Argyleshire, and Great Stanhope-street, London, was elected a governor, and one hundred and sixty-six gentlemen members of the Society.

On the motion of Lord Portman, seconded by the Hon. Robert Clive, M.P., it was resolved that Liverpool should be the place of the Annual County Meeting of the Society, in the year 1841.

WEDNESDAY, July 15. — At a meeting of the Council: present—His Grace the Duke of Richmond, President (in the chair), the Marquis of Downshire, Earl Spencer, T. W. Bramston, Esq., M.P., Henry Handley, Esq., M.P., W. Fisher Hobbs, Esq., Francis Pym, Esq., Rev. W. L.

Rham, E. A. Sanford, Esq., M.P., William Shaw, Esq., Rev. J. R. Smythies, Mr. Druce, of Ensham, near Oxford, and Mr. Graburn, of Sleaford, were requested to sow a portion of the Prize Wheat selected as the best exhibited, and to report the result to the Society.

Earl Spencer gave notice that he should move, at an early Council, that the Annual County Meeting for 1842 should be held at some place within the range of the Hereford county.

THURSDAY, July 16.—A Finance Committee, David Barclay, Esq., in the Chair, and a Council, J. W. Childers, Esq., M.P., in the Chair, were held in the forenoon, for the purpose of calling in all claims on the Society, and of authorizing the Stewards of the yard to discharge all miscellaneous bills to the amount of 400*l.*, leaving a discretionary power with Mr. Pym to pay all such small bills or other accounts as he might consider desirable. On the afternoon of the same day, Philip Pusey, Esq., M.P., the new President of the Society, held a Council, at which were also present, the Marquis of Downshire, Earl Spencer, Thos. Raymond Barker, Esq., Henry Boys, Esq., John Ellman, Esq., Henry Handley, Esq., M.P., C. Hillyard, Esq., Samuel Jonas, Esq., Francis Pym, Esq., Rev. W. L. Rham, William Shaw, Esq.

Alexander Francis Campbell, Esq., of Great Plumstead, near Norwich; Charles Robert Scott Murray, Esq., of Danesfield, near Marlow; and William Hale, Esq., of Kingsmalden Park, near Welwyn, were elected governors, and two hundred and thirty-four gentlemen members of the society.

THE GREAT YORKSHIRE AGRICULTURAL SOCIETY'S SHOW,

AND MEETING AT NORTHALLERTON.

Preparations are actively making for the ensuing meeting. Two capacious fields are selected for the show-yard for the stock, where the pens, &c. will be erected, and one of the largest and best shows of short-horns is expected that has ever been witnessed in England. The bulls especially are expected to be very numerous, and from the herds of the first short-horn breeders in the county who reside in the district. The stock will be in the field by seven o'clock in the morning; members of the society will be admitted by nine; the public, by 2*s.* 6*d.* tickets, at ten, and by 1*s.* tickets, at twelve. On Tuesday, August 4th, the Central and Local Committee dine together at the Golden Lion Inn, and on the 5th, the show day, the great dinner will be held in the Pavilion, erected for the purpose in the quadrangle of the Court House, capable of dining twelve hundred and nine persons. The building is covered with transparent water-proof canvass, and is an exceedingly beautiful room. The dinner will take place at three o'clock, Earl Spencer, the President, will preside. The exhibition in the show fields embraces cattle, sheep, horses, pigs, poultry, implements, seeds, roots, &c. Several temporary buildings are being erected to accommodate the horses, stock, &c., and every facility seems to be offered to accommodate the large influx of agriculturists, breeders, &c. who are expected to attend.

On Thursday, August 6, the annual meeting of the society will be held, and the prizes distributed. A great Horticultural Exhibition will also take place in the quadrangle of the Court House.

Mr. Wetherell will also sell the stock which may be offered on that day.

“LITTLE WONDER;”

WINNER OF THE DERBY.

(PLATE II.)

The marvellous little horse under consideration is, if we mistake not, the most diminutive Derby nag on record; he is under fifteen hands. He has many racing points in his favour, which will be seen by the following description: His head is small, his neck short and strong; his shoulders muscular and oblique; not very high in the withers; large and long arms, but legs short; pasterns long; feet good and open; the fore and back ribs large; very wide in the hips; very drooping quarters, and long; large in the stifles and thighs; and stands over little ground in the stable. His colour is a beautifully brilliant bay: he stands fourteen hands three and a half inches high, and his temper is particularly good. Some discontented hypercritics have endeavoured not only to run down Little Wonder's performances, but to question the purity of his blood. All this is in bad taste. He comes of some of our very best stock, and did time and space permit, we would convince these growling sceptics that some of the very best blood that England can produce flows in the veins of Little Wonder. The Stud book, however, will remove all doubts on this subject, and to that we must refer. As we cannot, therefore, indulge in a genealogical discussion at this moment, or *run up the family tree* to satisfy the jealousies of a disappointed few, we will content ourselves by merely stating that Little Wonder was bred in 1837 by Mr. Nowell, of Underley, and purchased by Mr. Robertson, his present owner, at the annual sale of Mr. Nowell's yearlings, at Doncaster, in 1838. He (Little Wonder, not Mr. Nowell) is got by Muley (by Orville, out of Sir Chas. Banbury's Eleanor) out of Lacerta (bred in 1816 by Lord Rous, and the dam of Marvel, Cestus, &c.) by Zodiac, her dam Jerboa, by Gohanna, out of Camilla by Trentham, Coquette by the Compton Barb, out of Sister to Regulus. By this it will be seen the little 'un does not come from a very bad sort. A veritable "John Bull" when he loses his money must grumble—it is in his nature, and his ill humour must have vent. It is true that the previous performances of Little Wonder were not of a character to warrant his winning the Derby. With this we have nothing to do, neither have the public. He *did* win the Derby, and well too;—beating the cracks in right good form, and doing his work right cleverly, thanks to Macdonald who did wonders with him.

The performances, if they may be so termed, are comparatively nothing. At the Newmarket Second October Meeting of 1839, Little Wonder started for the T.Y.C. Plate on the Tuesday, and not placed, Warden being first, Richmond second, and Jeffy third; Assassin and several others not placed. Started for the Nursery Stakes in the Houghton Meeting with 7st. 4lb. on his back, and was second, Assassin with 6st. 10lb. winning cleverly. These, the Derby, and the Ascot stakes at Ascot (where he run second), have been the only performances. Little Wonder is a large horse in a small compass; some of his points display extraordinary power; he is handsome withal in spite of his drooping quarters, and one of the most splendid colours we ever saw. He has earned his laurels well, and Mr. Robertson may well be proud of his *Bays*, for if they are all like Little Wonder, his horses are worth a kingdom.

SWEDE TURNIPS.—CHALLENGE ACCEPTED.

TO THE EDITOR OF THE MARK-LANE EXPRESS.

SIR,—My attention having been drawn, by a paragraph in your paper of the 1st inst., to the challenge made by Mr. Houghton, of Broom-hall, that he would show at Tring, on the 18th Dec. next, fifty Swedish turnips, against any man in England, I beg to say, that my fingers itch exceedingly to take up the gauntlet so thrown down by the worthy gentleman. I am willing to show fifty of my own growth against fifty of his growth; but, before I buckle on my armour, I should like to be informed, through the medium of your paper, the exact terms or conditions of the turnip tournament.—I am, sir, your obedient servant,

ROBERT MATSON.

Wingham, June 5, 1840.

THE SWEDE TURNIP CHALLENGE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

I perceive by your paper of last week that Mr. Robt. Matson of Wingham, appears anxious to take up the gauntlet to shew fifty Swedish Turnips against me, if he knew the terms.

I shewed at the Tring Station fifty Swedish Turnips against a gentleman in that neighbourhood, and they were weighed, after having been washed and the tops and roots taken off close, and the weights of them appeared in the Mark Lane Express and several other newspapers.

The challenge I then made was to shew those fifty Turnips against any man in England, weight being the criterion, to be grown in a field of not less than seven acres, and after a crop of white grain; the Turnips remained there for months, if Mr. Matson had thought proper to accept it.

If he thinks he can beat them this year, I am ready to make a wager for any sum not less than one sovereign, and not exceeding twenty sovereigns, that he does not produce, on the 18th of next December, fifty Swedes heavier than those I produced last year, subject to the conditions stated above.

Not being in the habit of writing in newspapers, allow me to beg of you to call the attention of your readers to the necessity of establishing a rural police force throughout every county in the kingdom; I am satisfied it would be very beneficial. I had, a fortnight since, ten sheep stolen in the Vale of Aylesbury, and notwithstanding we have all formed an association, and offer 110 guineas reward, it still continues, and now there is scarcely a night passes but some depredations are committed. I understand some are against it on account of the expenses, but I feel satisfied we should be repaid. I am, Sir, your obedient servant,

JOHN HOUGHTON.

Broom Hall, Sunning Hill, June 11.

SEED TURNIPS.—CHALLENGE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—It was my wish to have paid earlier attention to Mr. Houghton's letter, published in your number of the 15th inst., but I was so desirous of ascertaining the weights he refers to, that I let pass a week or two to overhaul at intervals old newspapers, but did not in the course of my rummage meet with such account; however, my recollection of the turnips shewn by that gentleman at Tring is sufficiently clear, and I feel no hesitation in accepting

his challenge. As the main object of all such emulation is the advancement of this or that branch of agricultural pursuits, a small wager will answer the purpose as well as a large one, and accordingly I will, with Mr. Houghton's leave, name the harmless sum of *five sovereigns*. The question being decided as to my fifty turnips against the recorded weight of the fifty already shewn at Tring, I should vastly like to have a supplementary contest with fifty of my turnips against an equal number of Mr. Houghton's ensuing crop, at the Smithfield Cattle Show, for another modest bet of another five sovereigns.

I do not propose to alter the conditions agreed upon for the Tring exhibition, but if ever I make any future trial for the championship of the turnip, I shall require additional terms; the mere weight of a given number of selected turnips, is not in my opinion, a satisfactory criterion; I should therefore expect, firstly, that the weight should be the weight of produce per acre; secondly, symmetry of bulb; thirdly, genuineness of bulb; and fourthly, quality, another essential point, evenness of leaf, cannot be insisted on, when the specimens are topped and tailed.

By quality I do not mean that thicknecked monster turnip sometimes shewn at agricultural meetings, and which excites wonder and admiration until it is cut and tasted, when it turns out to be woolly, stringy, juiceless, with ill flavoured flesh, with gigantic leafage, and altogether fit only for the descendants of "the ram of Derbyshire" celebrated in ancient song. No, no, by quality I mean the fulness of saccharine juice, which delights the palate of cattle, and clothes their bones with flesh at a rate akin to railway speed, that gives the clear crisp slice, which flies like glass before the knife and between the teeth of distinguished noblemen, gentlemen, and yeomen agriculturists, and of worthy Londoners too, whom I have seen crowding around my standing at the Smithfield Cattle Show, munching slice after slice, as if they were astonished how very few removes it appeared to be from the golden pippin or pine-apple. I mean that turnip, six, eight, or ten lbs., round as a cricket ball, and which melts in the mouth of those unerring judges the pigs, who will absolutely fatten on these Swedes, which hares, rabbits and rooks greedily, while they will do no more than look and smile at others closer at hand, and which, moreover, become leathery in a dry season, whilst my sorts remain as round, as sweet, and as good as good can be.

I am, Sir, your obedient servant,

Wingham, June 24.

ROBERT MATSON.

CAMBRIDGE MEETING.

We subjoin a cut of Messrs. Garrett's Machine, For Messrs. Ransome's, see plate.

The following is an account of the work performed by each of the thrashing machines at work on Tuesday, at the farm on the Hill's Road:—

By Messrs. Garrett's Machine.

Cmbs. bushels. pks. Cmbs. bushels. pks.	
Best sample not injured ...	13 3 0
Seconds	1 1 0
Thirds	0 1 2½
Total	15 1 2½

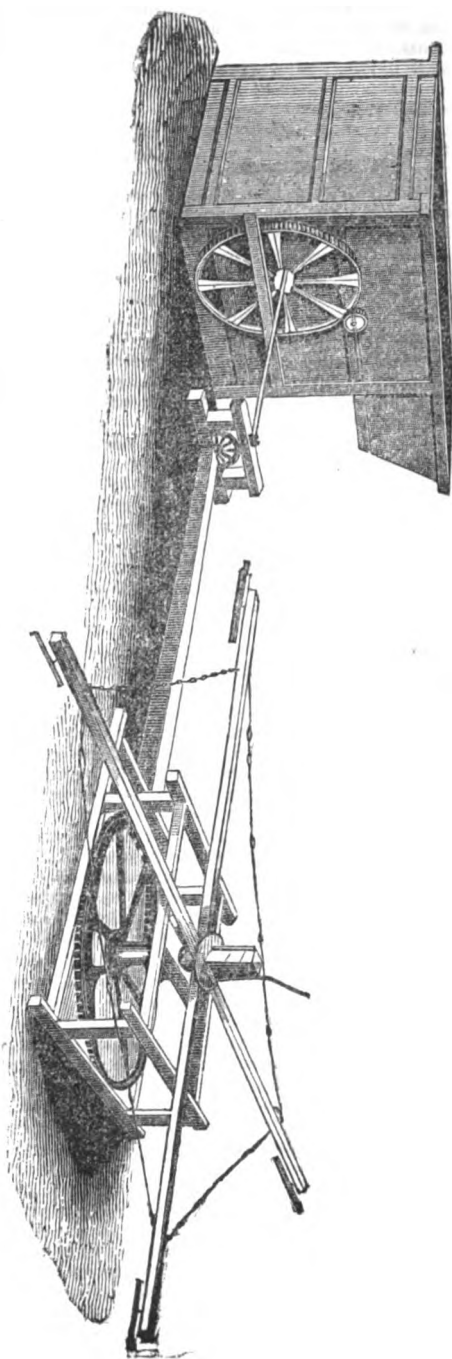
By Messrs. Ransome's Machine.

Best sample, not injured ...	13 1 0
Seconds	2 0 0
Thirds	0 0 3
Total	15 1 3

By Messrs. Bond, Turner, and Hurwood's Machine:

Best sample, not injured..	5 3 0
Seconds	0 0 1
Total	5 3 1

thrashed in 20 minutes.



PRESENTATION OF A PIECE OF PLATE TO THE DUKE OF RICHMOND BY HIS SUSSEX TENANTRY.

On Thursday, July 23, a magnificent piece of plate, the gift of the tenantry on the Goodwood estate, was presented to his Grace the Duke of Richmond. The presentation took place in the tennis court, where an elegant *déjeune à la fourchette* was prepared.

The chair was filled by T. Halstead Esqr., of the Woodcote farm, whose ancestors and himself have been on the Goodwood estate for upwards of 130 years. The Duke of Richmond sat on his right hand, and he was supported by the Earl of March and nearly sixty farmers and gentlemen holding land &c. under his Grace. The piece of Plate, the design of which for such an occasion was most appropriate, represented a shepherd boy attending his flock, the sheep being exquisitely modelled in silver, his dog is at his feet, and a cow behind him. From the centre springs a magnificent candelabra, around the branches of which the ivy, the badge of the Gordon clan, is entwined,—was placed at the head of the table.

When the usual preliminary proceedings had been gone through the Chairman and the tenantry rose, and the former addressed the noble Duke in the following terms: He said that he rose to perform a pleasing and gratifying duty, and he felt most deeply the honour which had been done him in selecting him to fill the situation he then held on so interesting an occasion; and while he regretted that the choice had not fallen on some one better qualified to express the sentiments of those around him, yet he trusted he might be permitted to say that no one could feel more sincere delight in being the medium through whom those sentiments were conveyed to the noble Duke. It was their good fortune to be the tenants not only of an indulgent and a liberal landlord, but of a kind and sincere friend. The noble Duke was too well known there to render it necessary for him to add one word of compliment or eulogy, but he could not but advert to the distinguished situation which his grace had lately filled as President of the Royal Agricultural Society, a society in which men of the first scientific attainments pressed forward to co-operate with the practical farmer. They had lately had the satisfaction of seeing their illustrious friend presiding at the great anniversary meeting at Cambridge, where, as at every other time, and every other place, he spared no exertions to promote the welfare and prosperity of his fellow-men. He would only recal to their recollection the scene which that Hall presented a few weeks since at the meeting of the West Sussex Association, where the noble Duke was surrounded by the farmers and labourers of the western division of the county, zealously and energetically supporting the interests of both, and more especially, he would add of the latter. I will now (said Mr. H.) without detaining you longer, at once proceed to the pleasing duty which devolves upon me:—

“My Lord Duke, in the name of your Grace's Sussex tenantry I have the honour to present and request your Grace's acceptance of this piece of plate, as the memorial of the high estimation we entertain for your Grace as our landlord and friend; and may Providence send down its blessing, and grant your grace a long and happy life to preside over a deserving tenantry.”

The Duke of Richmond then rose and was most enthusiastically cheered; he said, that surrounded as he then was by so numerous and respectable a body of men, by tenants, many of whom had known him from childhood, and from whom he had ever received the greatest marks of kindness, and who had now met to offer him so splendid and distinguished a proof of their attachment, they might well believe he found it difficult to gain words to express his feelings; there were emotions too deep for utterance, there were feelings which words could not express, and such were those with which at that moment he was overpowered. I accept your present, continued the noble Duke, I accept your kind and generous present with feelings of the deepest gratitude; as an heirloom in my family it shall descend to my children's children. My eldest son is now among you, a witness to the reception his father meets with from the farmers of Sussex, and when it shall please Providence to remove me from this earthly scene, may he learn to look on them as his best and warmest friend. From the first moment of my coming among my tenantry to the present, I have never received an angry word, on the contrary, they have ever sought opportunities of shewing kindness to me and mine, I can only hope that they may long continue to hold their farms in health and prosperity. If your gift (said the noble Duke) is creditable to me as your landlord, it is doubly so to you. It will shew, and I speak it with pride and gratification, the good will and attachment which exists on the part of my tenantry and myself, and when I can forget this noble proof of your feelings, may you then forget me. The noble Duke sat down amidst loud cheering.

After the conclusion of the repast, his Grace at parting took occasion to offer a few remarks. He alluded to the late Meeting at Cambridge, and the results which were likely to spring from the Royal Agricultural Society, where men of all ranks met for one common purpose, and where politics were excluded; the statesman, the landlord, the farmer, and the labourer were joined for one great and good purpose, at one time endeavouring to bring to bear on agriculture those arts, by the intervention of which perfection and wealth had flowed on the other branches of national industry; and at another endeavouring to ameliorate the condition, both moral and intellectual, of the labourer. His Grace, after again alluding to the object for which they were assembled, and again endeavouring to express the feelings which almost overpowered him, then left the Hall.

The plate was manufactured at Gerrard's, Haymarket, London, and was an exquisite work of art.

ON PURCHASING NITRATE OF SODA.

SIR,—As Nitrate of Soda is much used as a manure, I beg through the pages of your magazine to caution those agriculturists who intend to use it, to be very careful in procuring it from respectable parties, as a common and low priced article is now offering supposed to consist of the common soda and salt; this forms a muriate instead of a nitrate of soda, and has a tendency to destroy vegetation. I remain, Sir, yours obediently,

July 9th.

A FARMER.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JULY.

[Since this report was written the weather has all the appearance of being settled harvest weather; should such be the case, it will be impossible to estimate the extent of improvement which may take place, in the wheat crop more especially.]

During the whole of this month, the greatest anxiety has been manifested, not only by those immediately engaged in agricultural pursuits, but, likewise, the community at large, respecting the growing crops of all descriptions of the soil's productions, but more particularly those of wheat, barley, and oats. This state of things was greatly heightened towards the close of the above period, owing to the accounts, received from our corn districts, being of a very unsatisfactory, and, in many instances as regards wheat, of an unfavourable character. Having ourselves, as has been for many preceding seasons (from the conviction that personal observation would the more readily enable us to convey to the minds of our readers every *fact* connected with agriculture, than the mere reliance on reports transmitted possibly by interested parties) taken an extensive tour in most of the midland, northern, and western counties of England, we are enabled to speak definitively of the present appearances of the wheat plants, as also of the future prospect of the agricultural community, while we cannot but express our regret at being compelled honestly to confess that, to us, they are very far from flattering. In Essex, the wheat appears, on good soils, to have progressed towards maturity surprisingly well, though under by no means favourable auspices, and the yield is fully anticipated to amount to a full average; while on heavy and poor lands, a great deficiency is apparent, the stalks being extremely thin and stunted. Throughout Suffolk, Kent, Sussex, Cambridgeshire, and Yorkshire, the appearances do not warrant an improvement on last year's produce. In turning, however, our attention to the south, we have great cause for congratulation, the wheat, in that quarter, being, we are truly happy in bearing testimony, in the most perfect order, and every farmer with whom we have conversed, and over whose lands we have travelled, having expressed himself in high terms of all passing around him, whilst no doubt is entertained of the forthcoming harvest of that description of grain being great. At no previous corresponding period of the year, have we been called upon to record in a more favourable light the growth of barley; indeed, although an unusually large number of accounts have been transmitted to us, from the most extensive barley growers in England, we are firmly of opinion that this year's will greatly exceed that recollected for many past seasons. Oats will, doubtless, be very short in the straw, yet the yield is expected to come up to a fair average. In many sheltered situations, the fly

appears to have committed extensive ravages upon both beans and peas, in consequence of which, and the limited stocks on hand, their value is pretty generally expected to be considerably enhanced, during the next three months; hence large supplies of foreign will be released for home consumption, at an almost nominal duty.

The late considerable rise in the currencies of wheat, in almost every market in the kingdom, and the consequent fall in the duty to 16s. 8d. per quarter, have induced many persons to suppose that the quantity of grain in the hands of our farmers is extremely small. That it is much less than ought to have been perceived at this momentous crisis, we have little cause to doubt, but it is to be sincerely desired that it is sufficiently large to prevent the importation for home consumption of any very considerable quantity of foreign. Should the latter be the case a great derangement will inevitably take place in our monetary system, and disastrous consequences will be the result.

Harvest appears to have already commenced on some highly cultivated lands in Devonshire—a correspondent under date the 24th inst., writing as follows:—

"The corn harvest has commenced in this county. On Wednesday, a field of wheat, the property of E. Gatty, Esq., was cut in excellent condition, and we are now busy in cutting oats." The same intelligence has, also, reached us from several other districts.

The fluctuations in the atmosphere have been almost without a parallel, the wind having, on many occasions blown from all points of the compass in less than 24 hours; nevertheless, the effect upon the crops has been, comparatively speaking, trifling.

From Scotland our accounts are, on the whole, favourable, the wheat being described as already in full bloom, with every prospect of a fair average return; but the harvest is expected to be a protracted one. The value of wheat has been, as with us, on the advance, with very moderate supplies offering, while barley and oats, the shipments of which to the English markets have proved, the time of year considered, extensive, have well maintained their position.

In Ireland the grain plants are looking unusually thin, with every prospect, at least judging from present appearances, of a bad crop of most kinds of the soil's productions. Wheat, barley, and oats have been held at high rates.

Notwithstanding the crop of hay has been gathered in tolerably good condition, the swathe has fallen considerably short of the expectations of the growers; indeed it must be considered one of the lightest growth recollected for a series of years past; still, however, a good second crop is fully expected.

The following is our usual monthly statement of the supplies and prices of fat stock exhibited and sold in Smithfield Cattle Market.

The supplies have consisted of 10,590 beasts, 149,680 sheep and lambs, 1,200 calves, and 3,840 pigs, while the prices have ranged as follows:—Beef, from 3s. 4d. to 4s. 8d. per 8lbs.; Mutton, 3s. 6d. to 4s. 8d.; Lamb, 5s. to 6s.; Veal, 4s. to 4s. 10d.; Pork, 4s. to 5s.

A STATEMENT and COMPARISON of the SUPPLIES and PRICES of FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, July 29, 1839, and Monday, July 27, 1840.

At per 8lbs. to sink the offals.

	July 29, 1839.			July 27, 1840.		
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coarse & inferior Beasts	2 10	3 2	.. 3 2	3 2	3 6	
Second quality do.	3 4	3 8	.. 3 8	3 8	3 10	
Prime large Oxen.....	3 10	4 2	.. 4 0	4 0	4 4	
Prime Scots, &c.....	4 4	4 6	.. 4 6	4 6	4 8	
Coarse & inferior Sheep	3 6	3 8	.. 3 2	3 2	3 6	
Second quality do.	3 10	4 0	.. 3 10	4 2		
Prime coarse woolled do.	4 4	4 8	.. 4 4	4 4	4 6	
Prime Southdown do..	4 10	5 0	.. 4 6	4 8		
Lambs	5 0	6 0	.. 5 0	6 0		
Large coarse Calves ..	4 2	4 8	.. 4 2	4 10		
Prime small ditto.	4 10	5 2	.. 5 0	5 2		
Large Hogs.....	3 10	4 6	.. 4 0	4 6		
Neat small Porkers ..	4 10	5 2	.. 4 8	4 10		
SUPPLIES.						
	July 29, 1839.			July 27, 1840.		
Beasts.....	3,137			2,989		
Sheep	28,640			25,920		
Calves	203			183		
Pigs.....	690			650		

The arrivals of slaughtered meat up to Newgate and Leadenhall markets from Scotland and various distant parts of England, have been wholly unimportant, yet the sale for them, on account of their being received in bad condition, arising from the weather, has been heavy, at low currencies.

WEST CUMBERLAND.

It has seldom, if ever, been our lot to witness, not amongst farmers alone, but in the public mind generally, a greater anxiety than is at present manifested respecting the grain crops, owing to the threatening aspect of the season. For the last two months we have experienced wet, cold, and ungenial weather, which for the last season has been unseasonable in the extreme, and, with the exception of a day now and then, being as boisterous and as cold as in winter. Yesterday was St. Swithin's day, and the lachrymose Saint shed his tears in abundance, which the believers in old saws look upon as a bad omen for improvement. Great apprehensions are entertained for the wheats at this season, particularly those which were early sown, and which are now in bloom. The thin crops seem blown loose by the boisterous winds, and are very much laid down; but the more sheltered and backward crops have not yet sustained any injury. The early sown barley, and indeed all upon dry soils, seem highly promising; but the colder soils and the later sown barley appear to promise only indifferently. Oats everywhere look well. Indeed, generally speaking, we never remember having seen finer crops of this prolific grain. Sown grass hay is generally considered thin, but old grass and meadow hay are everywhere abundant. A considerable portion of the seed hay has been placed under cover, during favourable intervals of weather, in pretty fair condition; but little of the old grass is yet secured, and the early part of the meadows are only now being cut. The early planted potatoes are most favourably spoken of in all parts, and all that we have seen of them present a most luxuriant appearance. Some have already been brought to market, and are really excellent. Those, however, which were late in being planted, and such as were set upon cold soils, are by no means so promising, and we are afraid, unless we have a favourable alteration in the weather, they will be a failure to some

extent. The Swedish turnips, sown early on good dry soils, promise well; those on cold retentive soils are making little or no progress in consequence of inclement weather, notwithstanding their recently promising appearance. The later sown common turnips present by no means a very promising aspect on cold soils, or where the land is wet, and we have heard many farmers already express their intention of ploughing them down, which will tend greatly to raise the price of fat beasts during winter. The fallow ground, generally speaking, is in a very filthy state—a circumstance entirely owing to the unfavourable weather, and not likely to be much improved at this late period of the season. The present state of the fallows augurs very unfavourably for the wheat crops on fallow ground in 1841. The grass lands for pasture, which are good and dry, are pretty full of keep; but the grass on cold lands when bitten does not rise again;—these lands have lost their colour, and their supply of keep seems very scanty. Stock, owing to the inclemency of the weather, are not doing well, and fat stock remains dear—choice ones scarce. Lean stock are not in such lively request as of late; both cattle and sheep are lower. Horses at different fairs have recently met with only moderate markets, with the exception of choice animals, which are always in request, and out of season. Pigs are more plentiful, and somewhat reduced in price. Our grain markets, throughout the district, are very scantily supplied with home-grown produce. The wheat, notwithstanding the advanced state of the season, is generally poor, and principally used for making ship-bread. There are very few stacks to be seen in the country of any kind of grain. The markets, however, continue to be plentifully supplied with foreign and Manx grain, which are much enquired for, and meet ready sales at stationary prices. The late drenching rains, and the present cold and gloomy state of the atmosphere, have been pretty general throughout England, Ireland, and Scotland, and should they continue there is every probability of an advance taking place in the price of grain. Trade is at present unusually languid and money scarce, and the heavy remittances for foreign grain tend to make the scarcity of money still more seriously felt. It may seem somewhat strange to many of our country friends to learn that West Cumberland alone, during the last two years, has remitted more than three hundred pounds per week for foreign grain. Should the present unfavourable weather continue much longer, we shall have to add, to the three out of four already past, another adverse season, the effects of which will be most disastrous to the English farmer, as well as to the poor. Should the season continue unfavourable the farmers who have been struggling with the effects of the late bad seasons have no prospect but that of ruin, or salvation therefrom through the clemency of their landlords.—July 16.

LEICESTERSHIRE.

This season of the year being particularly interesting, as we may now form a tolerably correct estimate of the fruits of the labours of the husbandman from the forward state of the crops, I send you the following observations which strike me as applicable to this county. That of wheat first claims our attention as being the most important to the welfare of the great portion of the people. The crops of this grain are exceedingly various, according to the different qualities of the soil, and the period when the seed was put into the ground

As far as my observation extends, and from all the information I can collect, the crops are light, and a much less bulk of straw is expected than in average seasons. I have not yet seen a field of wheat which has been laid, and this is a proof that on the best soils the crop is not heavy, but on second rate and inferior they are very thin and much below an average, and some which were sown during the rains late in the autumn do not promise more than half a crop. The late showery weather has been peculiarly favourable to the rapid growth of the spring sown wheats, they have gone well into ear, though generally small, excepting on some of the best land where the yield will be very fair, while others only promise two-thirds, and those on inferior soils half a crop. I cannot say that the colour is generally good, as many fields look too dark, and the flag of a rusty hue. With very few exceptions the spring corn promises an abundant crop; both oats, barley, and especially beans, are looking well; and of the latter I have not seen any that do not surpass, both as to length of straw and quantity of pods, the crops for several years past. These cheering prospects in regard to the spring corn, I hope will, in some degree, compensate for the deficiency in wheat. Should the present cold and cloudy weather continue the harvest will not be so forward as was expected; very little will be ready for the scythe or sickle under a fortnight, and we cannot calculate upon much being cut before the middle of next month. Mowing grass has not been found so heavy as was expected at one period, the cold weather has not been favourable for its rapid growth, and many meadows have fallen light. The crops of clover and rye-grass vary much, but, upon the whole, approach an average. I cannot but allude particularly to the *Italian* ryegrass which I have grown for the last five years with the best success. I have stacked the produce of twenty acres of it and cow-grass this season, sown on wheat, and the bulk has been very great on strong clay land; the average length of the *Italian* grass is four feet, but many stems measured five, and the seed portion of them very long and full. From these two grasses, on cold strong soils, I consider I get nearly a load to the acre more than I could of the common rye-grass and red clover. The rapid growth of the eddish is astonishing, I stocked fifteen acres with one hundred sheep which

I am feeding for the butcher, as soon as the ground was cleared, and that within a fortnight from the commencement of mowing. I can well attest the fact mentioned by Dr. Buckland at the meeting of the Royal Agricultural Society at Cambridge, that the sheep will eat down to the ground this grass before they will taste the clover or other grasses growing with it. Haymaking has proceeded slowly, and about half may be secured, but with different degrees of success, and I fear much is put together in that state which will cause it come out very inferior fodder. With the exception of the 13th 14th and 15th inst. we have not had three consecutive days of bright or fair weather since the commencement of the hay-harvest. The turnips have a most favourable appearance and a prospect of an abundant crop. The plants have in no instance that I know of been attacked by the fly; they came up quick, but from the cold weather have grown slowly, and on weak sandy soils look rather sickly, still those which are hoed are going on well. Potatoes and mangel wurzel are growing rapidly, and a fair crop may be expected of these useful roots. The pastures are not good; the graziers complain of the weather being too cold, and the bottom grass does not spring up in any quantity. Fat beef is not very abundant, and realizes a good price, 6d. to 6½d. per lb. Mutton does not sell quite so high as a few weeks back, and 6d. may be quoted as the average of good qualities. The epidemic among cattle has ceased in a great degree, though it still exists in various parts of the County. It has been fatal only in very few cases, and has generally yielded to mild remedies.

In consequence of the depressed state of the Yorkshire and Leicester woollen trade, wool has sold much lower than last year. At the fair held at Leicester on the 4th inst. a large quantity was pitched, and nearly all of it sold at from 28s. to 31s. per tod. The season is approaching when the Leicester hosiery trade generally revives, and should it happen to be the case this year, we may anticipate better prices in a month or two; the impression at present is that wool is at the lowest, which cannot be said to be more than 28s. to 29s. I should say to the grower, be in no haste to sell at the present price, but hold your wool a little longer. I am happy to say our labourers are receiving 15s. per week beside beer, and in many cases, are earning by piecework from 20s. to 25s.—July 23d

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

At MORETONHAMSTEAD FAIR, the show of bullocks was not very large, and in the early part of the morning business was dull, those having to sell asking a greater price than those intending to purchase were inclined to give. As the forenoon, however, advanced, a change in this respect took place, and some business was done, but at rather a decline in price, the fat bullocks being sold at about 10s. 6d. per score. Cows and calves also became in demand, and many were sold at from 9l. to 14l. Good oxen and steers, likewise, met with purchasers. Lean stock, however, was in very dull sale, the general complaint being the scarcity of grass. Of sheep and lambs there were more penned than has been known at preceding fairs for many years, but as in the bullock fair, in the morning there was an indisposition to business. As the day, however, advanced, a decline in price in this respect also took place, and some sales were effected—prime fat wethers fetching about 6d. per lb. Some Dartmoor wethers, in good condition, and in their wool, were exhibited, and

met a sale at from 5½d. to 6d. per lb. A few lots of lambs, of excellent quality, were likewise sold, at from 5½d. to 6d. per lb., and on the whole it may be said that a tolerably good share of business was done.

At THORVERTON FAIR, on Monday last, there was a wonderful exhibition of extraordinary fine rams, from some of the best breeders in the neighbourhood, and it was understood they were well let and sold. It was a very fully supplied fair of lambs, but a duller one was never experienced. It is thought that not above one-half that were shown, were sold, and those nearly of the best description. The quotation for sales too, having the extraordinary wide range of from 12s. to 27s. a piece. As to sheep,—butchers' sheep were not plenty, and those of the prime descriptions were sold,—the wethers at about 6d.; and ewes, from 5d. to 5½d. per lb. Store sheep were not in any great plenty, and on very dull sale, everybody being in want of keep. The quotation, however, for the business done, may be stated at from 22s. to 34s. a piece. There were a few grass

ed, but no winter fed bullocks shown, and those that were fit for the stall, were sold at about 10s. per score. There were a few heifers and calves, but presenting nothing beyond what may be termed a good description, and most of the best were sold at prices varying from 12l. to 15l. In the way of store bullocks, there was nothing calling for mention.

SHERBORNE FAIR on Monday last was but thinly supplied with stock in general, with the exception of lambs, of which there were about the average number, and met a very dull sale, horn lambs at from 12s. to 16s.; down lambs 15s. to 23s., and at those prices many returned unsold. With wethers and ewes the fair was but thinly supplied; wethers in good condition were inquired after, and sold readily at 6d. per lb., poor ones at from 25s. to 34s. per head. The bullock fair was also thinly supplied; beef sold slowly at 8s. 6d. to 10s. 6d. per score. From the shortness of hay at present on the land, and the small quantity of hay made this season, rendered it impossible to convert many of the poorer beasts into money. There were some useful horses of the cart kind offered, but a poor collection of nags, and but very few changed hands. The wool trade was in a very sluggish state, the sellers scarcely knowing what to ask, or the buyers what to offer; we understand the most money that could be realized was 13d. per lb., but 12d. was the general price offered, and we did not hear that scarcely any business was done in this article; on the whole, the fair may be said to have been an extremely dull one.

COLCHESTER FAIR.—The supply of sheep was not so large as we have witnessed, but the trade was exceedingly flat. There were about 4,500 penned, and not more than 1400 changed hands, at prices not quite so high as at Colchester market, on Saturday last, the best wethers fetching not more than 39s. to 40s. per head. The show of horses and cart colts was not so good as at St. John's Green fair, and from the high prices asked, scarcely any of good quality were sold. A few sales were effected from 33l. to 35 guineas each, and some of the secondary and ordinary descriptions were sold according to their quality; but the trade altogether was very dull. The show of lean beasts was by no means good, and as to sheep, scarcely any business was done. Indeed the dealers all acknowledged that they had not witnessed less trade for several years past.

EARL SOHAM FAIR.—This annual mart for the sale of sheep and lambs was held on Thursday last, and was numerously attended. The pens exhibited were acknowledged to be excellent in quality and condition, but business was very flat, and the sales that were effected were at a reduction of from 2s. to 3s. upon the prices of last year. But few beasts were shown.

At **OVERTON SHEEP AND LAMB FAIRS**, held on Saturday the 18th of July, the number penned exceeded that of any former year, amounting to upwards of 100,000 head. Owing to a long continuance of dry weather, dealers were shy of purchasing except at reduced prices, which varied from 27s. to 35s.; ewe lambs, from 29s. to 40s.; wethers, from 30s. to 47s. The stock was considered not so good in condition as last year. The show of rams, from Messrs. Saunders, Dowden, Twynam, Edney, and Beckingham, excited the admiration of numerous visitors; also a pen of ram lambs from Sir Thomas Baring, some of which were purchased by a gentleman from Belgium. The lambs and ewes entered for the prizes, given at this fair by the neighbouring gentry, were of the finest description, and being penned in the new fair ground set apart exclusively for that purpose, attracted a crowd of spectators. So large a collection of the choice stock of the far-famed breed of Hampshire was indeed a treat to the breeder and amateur not often to be met with.

ST. BOSWELL'S FAIR, July 18.—This extensive fair, which took place to-day, was well attended by both buyers and sellers. The following are the prices obtained:—Best bred lambs, 24s. 6d.; current 16s. to 22s.; half-bred from 16s. to 19s.; several lots were sold at from 16s. to 18s.; those three-parts-bred brought 19s. to 24s. Mr. Bryden, Glenormiston, sold

several lots of half-breds at 17s., 18s., and 20s. 6d.; Mr. Robert Ballantine, Peebles, a lot at 18s. 6d.; at these prices they were considered to be from 6d. to 1s. a-head above those obtained last year; and, as the supply was less, they were all readily sold off. There were a good number of sheep shown, but they were of a very ordinary description, consisting almost entirely of half-bred hogs, for which the current prices were 21s. to 24s., and at these rates they were well enough sold. Of wool there was a very fair supply, but the transactions were limited, and sales very dull. Half-bred hog wool, 29s. the stone of 24lbs.; current, 26s. to 28s.; Cheviot white wool, 21s. to 24s.; laid Cheviot, 13s. to 16s.; blackfaced wool (unsmear), 12s. to 14s.; blackfaced (laid), 7s. to 8s. There were a good many cattle, but few prime fat; those in good condition were sold at a shade lower than the previous Earlington fair. Of horses there were, as usual, a considerable number, which met a dull sale.

At **COLDFOURD (Colebrook) FAIR**, on the 13th inst., the fat bullocks, sheep, and lambs, met a sale at about late market quotations; but in store cattle and sheep there was little business done.

EXTRAORDINARY PROLIFIC BARLEY.—Mr. Samuel Barnes, of Westbury, has this year drilled in two acres with six pecks, and dibbled one acre with less than one peck of the grain, and most astonishing to relate, there are at this time to be seen from 100 to 150 stalks growing from one corn, and some of the ears contain from 30 to 40 corns in each ear; and last year the same gentleman grew nearly 24 sacks of grain per acre, of good quality. Its properties for malting has been tried, and found to answer well, but of course on a small scale. Mr. Barnes will be happy to show the barley, as now growing, to any gentleman desirous of seeing it.

“THE FARMERS’ AND GENERAL FIRE AND LIFE INSURANCE INSTITUTION.”—It will be seen by the report of proceedings in Parliament that a petition from the directors of this institution was presented to the House of Commons on Friday, the 24th of July, by Lord Ashley, praying a reduction of the duty on fire insurance, and the stamp on policies, when the insurance does not exceed fifty pounds. Within the last few months upwards of ninety cottages have been destroyed, and 200 families completely beggared in three villages in the West of England, namely, Allington and Fordington in Dorsetshire, and Stoke Cannon, near Exeter, in Devonshire. The furniture and working tools of these poor families were wholly destroyed, and no resource remained for them but the benevolence of private individuals. Subscriptions were set on foot, in one of which we observed the name of Lord Ashley, to a donation of £25. The stamp upon a policy for £50. is the same as for £5,000. The stamp and duty together operate as a prohibition in insurance for small amounts. But for the oppressive character of this tax, the poor creatures above-mentioned might have had their property reinstated, and the neighbouring residents been spared a heavy call upon their charity. From what we have been enabled to learn, the proposition is favourably entertained, and there is every reason to believe that the duty will be altered next session. This institution has already conferred a benefit upon the farmers by causing a reduction on the rate of insurance on *farming stock*; it will deserve well of the labourer if it should be the means of enabling him to avail himself of the protection of insurance against fire.—*London Journal*.

THE CROPS.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I have delayed giving you a report of the forthcoming crops longer than I had intended, in order to see what effect the fly might have upon the wheat plant, and I am happy in having it in my power to communicate, as far as my observation goes, that all the early wheats which were in ear at the time we experienced the cold, dry winds, about the 16th, 17th, and 18th of June, prevented the fly committing its ravages, by depositing the egg which breeds the maggot at the time the ear makes its appearance, and which caused so much destruction the two last seasons; but I am afraid from present appearances that the wheat which is now coming into ear will be more or less affected, unless we be favoured with dry windy weather: I am also sorry to say, that where the land is cold clay, the crop is invariably thin upon the ground, the straw weak, and knuckle fallen, producing a small ear. With regard to the spring-sown wheats (and which are to a considerable extent), the crop will not, I think, in many situations, scarcely pay the seed and labour, being much smothered with weed, not only in this, but in the great corn-growing counties of England, where I have lately visited, and this is the case also with respect to a considerable portion of the spring grain; this, however, is not to be wondered at, when we bear in mind the remarkably wet season we had to contend with when preparing the land for the present crops, which, being so saturated and washed, will take the farmers at least from two to three years in manuring and getting into its former state. Upon the whole, I am afraid, we shall fall far short of an average crop of wheat, of which at this time we stand so much in need. It is the opinion of some that we shall have wheat cut, in the present month, in some of the early districts, which probably may be the case; but we shall have wheat also to cut, and not a small portion in September.

I have to thank you for the valuable information and the impartial accounts you continue to supply us with in your useful paper and *Farmer's Magazine*.—I am, sir, yours respectfully,

JOHN YATES.

*Colton, near Rugeley, July 2, 1840.**Bewdley, 7th Month, 3rd.*

During the past month the weather has been variable, frequently showery, and for several days cold with north winds. On the whole it has, I think, been favourable to most of the corn crops, excepting Wheat, which would be much benefited by warm sunshine and dry weather, and the complaints greatly increase respecting the indifferent appearance of this most important article of food. On the light soils, from what I hear, I should think there would be full an average crop, but on the strong clay soils—and on these most of the wheat is grown—there must I think be a great deficiency; indeed, it could scarcely have proved otherwise from the very unfavourable circumstances under which most of it was sown. There is also a great breadth of Spring-sown wheat, which is generally reported as looking unpromising. The heavy winds and showers which we have had during the time of blossoming, must also have proved injurious I consider. The barley is reported to be generally looking well, but should the wet weather continue which we have had the last few days, it will be likely to become much laid. Peas are looking well. Beans and oats not grown extensively. The crops of grass lighter than they were expected to prove.

I remain very respectfully,
HENRY STUBBS.

BEDFORD WOOL FAIR.

This fair was held on Monday week. The quantity of wool brought into the fair was limited, and few transactions were made previous to the dinner. A deal of business was done in the cattle fair, at a little advance in the cow and sheep line. The show of tups was very superior, and the competition was so great that the judges had rather a difficult task. Several very eminent agriculturists were on the ground, and bestowed great praise upon the Bedfordshire breeders.

THE DINNER.

At two o'clock a large company assembled at the Swan Hotel, and did ample justice to the excellent dinner provided. The chair was taken by Charles Barnett, Esq., supported by Lord Charles J. Fox Russell, G. P. Livius, Esq., Charles Short, Esq., &c. &c. Mr. Hyne acted as Vice-President.

After grace had been said by the Rev. James Beard, and the cloth removed,

The CHAIRMAN gave the toast of "The Queen;" after which the usual toasts were given; and then said he would feel obliged by any gentleman stating what wool he had sold, and thus set the example.

Mr. JOHN PURSER stated that he had sold his wool at 33s., leaving sixpence to the times. He had done this to support the wool fair, and to meet the purchasers who had made bad speculations before. The wool consisted of 300 Down ewes, 200 half-breds, and 56 Leicesters.

Mr. W. BENNETT stated that he was at Leighton Fair, and there was a large quantity of wool, 49,000 fleeces, and upwards of 40,000 were sold, but the prices were not high, and farmers went there with a disposition to sell at market prices. The silver cup was awarded to Mr. Waller, of Luton, who bought twenty-one thousand fleeces. Mr. Burraess sold the Duke of Bedford's wool at 35s.; there was a good deal sold at 31s. and 32s.; the average price was 31s.

The health of the Judges, Messrs. Manning, Sandon, and Purser.

Mr. SANDON returned thanks.

Mr. Anderson offered the Duke of Bedford's wool at 33s. to Mr. Waller; it consisted of 300 Leicester Ewes, 150 half-bred Teds, and 150 Southdown Ewes; Mr. Waller's agent offered 29s., which was accepted.

Mr. Paine offered his wool at 34s., consisting of 45 Leicester Teds, 62 half-bred, 161 fat sheep, and 191 ewes; but no purchaser, no sample being produced.

Mr. Barnett offered his wool at 31s., consisting of 76 Leicester Teds, 115 Leicester Ewes, 82 fat Leicesters, and 103 Down Ewes; 30s. offered.

Mr. Cant offered his wool, half Teds and half Ewes, and 40 half-bred ditto, and 80 fat sheep, to Mr. Waller.

Mr. Onslow, of Staughton, sold his wool at 32s., consisting of 135 half-bred Teds, 212 Leicester ditto, 134 half-bred and Down Ewes, 130 Leicester ditto, and 51 fat sheep.

After a few more toasts, the Chairman left the chair, and the company separated.

HERTFORD WOOL FAIR.

The annual wool fair was held on Wednesday. There was a large attendance of both sellers and buyers than at the fair last year; and the quantity of wool offered was very great. Very little business was transacted before dinner: both parties remaining firm. At the dinner at the Shire Hall, the chair was filled by C. G. Thornton, Esq., in the absence of Lord Salisbury, who was advertised to preside, and whose absence was occasioned by the necessity of his attending to his parliamentary duties.

The CHAIRMAN said, from information he had procured, he believed that the trade was now about to take a favourable turn. He had many years ago got 44s. for his wool; but he now offered Mr. Weston 300 fleeces, mixed, at 24s.—Mr. Weston offered 30s.

This lot was bought after the dinner by Mr. Hale at 31s.

C. PHILLIPS, Esq., then offered Mr. Weston 418 fleeces, consisting of 168 choice Down tegs, 83 Leicester tegs, &c. at 32s., but they were declined. He then offered them to Mr. John Archer, jun., a young buyer, of whom Mr. Phillips spoke in terms of high praise and confidence. Mr. Archer offered 31s., and Mr. Phillips, with a view to encourage him in every way he could, accepted the offer. Mr. Phillips subsequently submitted the wool of Abel Smith, Esq., M.P. to the buyers, who left the table to examine it. It consisted of 735 wethers and 443 Down tegs. On their return it was offered to Mr. Archer at 35s. for tegs, and 30s. for the others. Mr. John Archer offered 34s. and 28s. It was then offered to Mr. Weston, who declined, as Mr. Archer had outbid him. Mr. Archer's price was accepted.

EDWARD LEWIS, Esq., offered to Mr. Youde 400 tegs, 317 ewes, and 200 wethers, at 32s.; Mr. Youde could not afford more than 29s., which was refused.

Mr. BIGG offered Mr. Hales 440 half-bred tegs at 35s., but Mr. Hales declined. Mr. Weston offered 34s., but it was not accepted. Mr. Weston announced that he had bought Mr. Charles Taylor's wool, consisting of 600 fleeces, at 33s., and wethers at 28s. Mr. Dorrington, of Waterford, sold 200 fleeces mixed to Mr. Taitam, at 32s.; Mr. Sworder sold 700 fleeces, mixed, to Mr. Waller, of Luton, at 30s.; Mr. Wadsworth sold 200 tegs, 90 wethers, and 26 ewes, to Mr. Weston at 33s.

Mr. JOSEPH JACKSON sold 589 fleeces of teg and ewe wool to Mr. Taitam at 35s. and 30s.; and some more of Mr. Abel Smith's wool, consisting of 231 tegs and 131 Down ewes, at the same price.

Mr. LEWIS, the Secretary, said, in the first year 22,000 fleeces were offered; in the second year, 24,000; in the last year, 13,000; in the present year, 27,355. This was a proof that they were in an increasing, not decreasing state.

NORTHAMPTON WOOL FAIR was held on Saturday last. Samples of the different growers' lots containing ten fleeces, five of tegs, and five of ewes, were exhibited on the market place as usual. About a hundred persons, growers and buyers, were at the ordinary, at which C. Hillyard, Esq., President of the Northamptonshire Farming and Grazing Society, presided. After the usual toasts had gone round, and the assemblage of growers of wool had been more than doubled, the chairman entered on the business of the day, observing that as it could not be doubted that the woollen trade was in a distressed state, he thought it would be prudent of the growers, who wished at that time to sell, to give way a little in the prices asked before dinner; but as neither the growers or buyers seemed willing to meet half way in the prices asked and offered, about four lots only were disposed of. The Chairman sold his, which contained very nearly half tegs, all Leicesters, at 29s. 6d. per tod. Mr. Rogers of Cucknoe, which had had three or four years ago one cross with the Downs, at 31s. Mr. Kimbell's, of Earl's Barton, a very superior lot, half bred between Down and Leicester, at 33s. per tod.

ILSLEY WOOL FAIR.—There were about 300 packs of wool brought for sale; it was well attended by buyers, but business progressed rather heavily, and many lots were unsold at 4 o'clock. Ewe fleeces sold at 29s. to 30s. per tod; regular flocks, 31s. to 32s.; and teg fleeces at 35s. to 36s. per tod. The silver cup for the best 100 teg fleeces was awarded to Mr. Wm. Fidler of Boxford. About 250 sat down to an excellent cold collation, — Villebois, Esq., in the Chair, supported by the Marquis of Downshire, — Wroughton, Esq., &c. &c.

LEICESTER WOOL FAIR.—About 4000 tods were pitched, a great falling off from last year; trade dull here, as well as in Yorkshire.

REVIEW OF THE CORN TRADE DURING THE MONTH OF JULY.

In our last two reviews of the state and prospects of the corn trade, we alluded very particularly to the possibility, if not actually the probability, of the admission of foreign grown wheat into our markets of consumption on the payment of duties much more moderate than those chargeable at the forementioned periods, and circumstances have since then occurred, which render this supposition even more probable than it then was. As is usual at this season of the year, the value of all descriptions of grain is regulated by the state of the weather, and from the middle of June till towards the close of last month, this principle has had an unusually open field for action. For a period of four or five weeks, the days, and particularly the nights, were colder than is consistent with an early harvest time, and from this circumstance the ripening of wheat, in particular, has been in some degree retarded. The holders of foreign bonded grain, and the importers of foreign wheats on speculation, were not idle during the continuance of this partially unfavourable state of the weather, for after all, should we have a dry season hereafter for gathering the fruits of the earth, it is not of the slightest consequence. Rumours of every description unfavourable to the best interests of the community—we mean *thereby a good crop*—were put into circulation, and the Chronicle and the Times journals assisted in their promulgation. To make a powerful impression, however, the reports made respecting the

state of the wheat crop should, at all events, have had some degree of consistency with each other. Whilst one complained of too much moisture having injured the winter wheats, another relied on the want of rain as the certain forerunner of a deficient crop. Since our last publication the great county of Kent it seems has been afflicted with this latter evil, and many are the unfavourable predictions consequent on this complaint. We however strongly suspect that the injury effected by this cause, if any be actually done, cannot be of any material importance, and the delay which has already taken place in the commencement of the reaping season, is not of the slightest consequence should the weather hereafter be dry and favourable. The fluctuations in the value of wheat during the last month were not extensive, notwithstanding the many unfavourable rumours which were circulated respecting the state of the growing crops, for it certainly has not exceeded at any time from 2s. to 3s. per quarter on the finest samples. The differences however in the average prices from the various districts, by which the duties payable on foreign wheat, when entered for home consumption, are regulated, have been immense. The average price of wheat from various quarters in Lincolnshire is little less than 25s. per quarter cheaper than the London average for the same week. It is nearly impossible that quality alone could have produced this effect, and we can only

attribute it to a system of management which too frequently is resorted to, when it is an object of importance to prevent a decline in, or to assist in the reduction of the duties payable on the importation of foreign grain for home use. In the present case it can scarcely be doubted that great efforts have already been made, and still are making, to reduce the duty now payable on foreign wheat in particular; and at this season of the year, when the supplies of British wheat are usually small, it does not require much capital to give a fallacious tone to the wheat trade, and to render the supplies in the leading markets apparently less than the consumption. By a few well managed purchases on speculation, the stands are rapidly cleared, and the millers are occasionally deprived, until the next market day, of that quantity which is necessary to their usual consumption. Fears and surmises soon, and very naturally, succeed this managed deficiency in the supply, and rumours unfavourable to the general appearances in the fields, are the certain consequence. It works well in the mean time for the proprietors of bonded wheat and for its importers, by causing an improvement in the value of this description of grain, on the chance of a reduction in the duty. Whether such an attempt has latterly been made, it is not for us to say, but we may perhaps be permitted to give an opinion on a subject so very interesting to all readers of the Farmer's Magazine as is the state of the coming crop of wheat. Before the close of last year, the wheat seed time was certainly not so favourable as could have been wished, and it may be that in some few instances the winter wheats are apparently thin on the ground; but this may not cause, where it does exist, any material deficiency in quantity, though it may be the means of producing excellent quality. Any complaints, however, which might be made on this subject at the close of last year, must have been most abundantly removed since the commencement of the present one, for the season for spring operations could not have been more favourable, and the crops of every description have not received one solitary check during its progress. The January planted wheats are quite equal in appearance to that of any previous season, and the spring sown wheats seem at all events to be luxuriant. Since the turn of the year it is utterly impossible that any damage could have been done to the growing crops, unless it has had its origin in the very favourable state of the weather, and the injury done to the winter wheats previous to January last cannot have been to any extent; indeed, we doubt much whether the reported injury exists any where, unless it be in the imaginations of the interested in the beneficial effects to themselves of a bad crop. The weather during a part of last month certainly was not so very propitious as it had been previously, but the only unfavourable effect which it has produced has been a delay of at most fourteen days in the commencement of the reaping season, which at this early period is not of the slightest consequence. A wet harvest time alone now can be attended by injurious consequences, and we can see no reason why such a calamity should be anticipated; indeed, the chances are numerous on the opposite side. To the holders and importers of foreign wheats, the reduction in the present rates of import duty is of vast importance, and should this object be by any other means effected than by a damaged crop, it cannot in any material manner now be hurtful to the agricultural interest of the United Kingdom. A large quantity of foreign wheat, if admitted for home consump-

tion, will liberate the British capital now abstracted from home improvements, in its importation, and this quantity will, to a certain extent, at all events, supply the deficiency now existing in the farmer's stocks of British grown wheats. The liberation of this quantity of capital will tend to increase the quantity of productive labour amongst the industrious classes of British society, and will enable them to increase their means of payment, and consequently, their consumption of agricultural produce, and of home manufactured goods. Abstractedly in itself a great evil, as an entirely free trade in corn must from necessity generally be, still to put that money again into circulation, which may be locked up by speculations in foreign grain, is certainly the most favourable plan for rectifying some of the bad consequences resulting from operations so entirely anti-national; and therefore to admit the foreign wheat already purchased into home consumption cannot be so injurious, even to the interest of the British Agriculturist, as the abstraction of the money embarked in it from circulation must be. A large quantity of all descriptions of foreign grain will be imported before the close of the present year, and the deficiency in the quality generally, and also partly in the quantity of the two last crops, will no doubt render necessary the consumption of a good deal of foreign grain, even admitting as we do in every respect, that the coming crop be an abundant one, both in quantity and quality. The want of six months' consumption of British grain, which ought at this period of the year to be in the possession either of the farmers themselves, or of the corn merchants, must be supplied before the corn trade can be again placed in a sound and healthy condition, and that can now only be done out of the surplus quantity of the coming crop. Although, therefore, our home agricultural interest may for a time be inconvenienced by the admission of foreign grain into competition in our own markets with their property, still eventually the British grower will be benefitted by this circumstance, in as far as it will enable him to replace into his stores that quantity of his own crop, which at the close of every corn season it is for his interest, as well as that of the public in general, that he should have in his possession. On payment of the present duties on foreign grain, or even of lower ones, therefore, no great public injury can be done by the admission into home consumption of even a large quantity of foreign grain, for in most cases a great proportion of it is already paid for, and its consumption now is almost the only way by which the capital embarked in it can be again brought into circulation, and rendered useful in the productive employment generally of the people. A material reduction in the present rates of duties however would be almost as great a general calamity as a bad harvest itself would be, for it would place the empire nearly in the same very unfavourable position, as a free foreign corn trade would do. It would cause an immense influx into the country of foreign grain and pulse of every description, and a great abstraction of the circulating medium would be the necessary consequence. The money market even already has been rendered feverish by the unfavourable rumours, which were put in motion during the greater part of last month respecting the state of the growing crops. A demand for foreign bills of exchange was created by the importers of foreign grain, and as our exports to Europe of British manufactures, and of goods of every description, did not at the time amount in value to the sum required for the purchase of foreign corn, the rates of the foreign exchanges became less favourable to England; and a repetition of the

same circumstances would soon cause a foreign demand for silver and gold, would render money again scarce, and a reduction in the value of every thing, the wages of labour included, would be the unfortunate result. Under no circumstances can wheat be cheap during the remainder of this year, but still duties much under the present rates would be attended by much mischief, and would in a very material manner injure the best interests of all the industrious classes of society. To the agricultural interest any importations of grain from foreign nations, which can occur during the remainder of this season, cannot be of much consequence, for, as we have already stated, it will enable the farmers and corn merchants to purchase and to hold that quantity of British grown grain, which is so necessary to the health and soundness of the British corn trade; but to the mercantile and manufacturing classes of society, any large importation of foreign grain at nominal duties even, would be in every way injurious. It would render money extremely scarce, and consequently extremely dear. It would for a time put a limit to all descriptions of improvements at home, and of speculative operations, and it would thus place many thousands of families entirely out of employment. Even should this state of things reduce the value of provisions by one-half, it would not be of the slightest advantage to those engaged in commercial and manufacturing labours, for the wages of labour would be subjected to a correspondent reduction, and, what is worse still, productive employment, that great property of the industrious, would be itself materially reduced by that falling away in the home consumption of all descriptions of manufactured goods, which the dearth and scarcity of money would occasion. To prevent scenes of this description, and occurrences so very fatal to the best interests of the community, is as much the object of the corn laws, as the protection of agriculture, for cultivated fields will produce, even should commerce and trade decay. Agricultural improvements benefit the human race for ages, but the labours of commerce and manufactures are ephemeral. They depend for existence on the breath of fancy, and they decay when they become no longer fashionable. Still the corn laws are in every way of the greatest utility to these classes; indeed, they are absolutely necessary to their prosperity. They are the means of retaining within the United Kingdom those stores of wealth, out of which originate productive employment in the greatest abundance, and which consequently cause correspondent rates of wages. During the last two corn seasons not less than ten millions sterling, in specie, have been remitted for grain alone to foreign nations, which sum for many years cannot return to this country, and is consequently lost to the wealth of the empire. Had the weather not been so very unfavourable to farming operations as it was during the years 1838 and 1839, the present circulating medium would have been increased by these ten millions sterling; they would have been expended in the purchase of provisions produced at home, and would now, in some department of industry or other, have been increasing the quantity of productive labour at home, and enhancing the rates of wages paid for it. The eyes of the artisans and operatives of all descriptions are now wide open to the advantages which they reap from detaining our capital and wealth within the British empire; they see no good reason why they should be called on to give employment to foreign agricultural labourers, from whom they receive no adequate return, in preference to their fellow subjects, the agricultural

labourers at home, who expend all they gain in their native country, and whose consumption of manufactured goods is by far the most valuable department of the manufacturer's industry. A few short-sighted master manufacturers fancy that the export trade of the country may be materially increased by the exchange of our manufactures with foreigners for their grain. The operatives, however, are widely awake to their own interests on this subject. To induce foreigners to consume British manufactured goods, we must first be able to undersell their manufacturers in their own market; and this can only be accomplished by an immense reduction in the present rates of wages at home. Hence the cry originates for an unrestricted freedom in the corn trade; hence arise what some are pleased to call the benefits of reciprocity in commerce. Dearness and cheapness, however, depend entirely on circumstances. Wheat is dearer in Poland at 10s. or 15s. per qr. than it is at 60s. per qr. in England, because the wages of labour in Poland are not sufficiently high to enable the great body of the people there to consume their own wheat, even at 10s. per qr. This price in fact is too dear for their means; whilst in England the wages of labour render wheat cheap even at 60s. per quarter. The value of the necessaries of life, therefore, must always be regulated by the means of the consumers, and times will be bad indeed in the United Kingdom, should the wages of labour and the value of provisions ever be placed here on a level with those obtained in the corn districts amongst foreign nations. That our export trade has much increased under the existing corn laws during the last ten years, is abundantly proved by public documents. For the year ending in March, 1830, the official value of our exports was rather more than thirty-five millions sterling, whilst during the year ending in March, 1840, it had been increased to the enormous sum of upwards of fifty-two millions sterling: during the same period the home consumption has been nearly doubled. This favourable improvement in the commercial and manufacturing relations has chiefly originated in the sound and healthy condition of the agricultural interest, established on the improvement in the corn laws now effectually in operation during the last ten years. In a state of society so very artificial as ours is, there unfortunately must be many instances of distress, as well amongst individuals as in various branches of industry; but these generally arise from causes which eventually cure themselves, and cannot be, under present circumstances, of long duration, for the continued advance in the science of agriculture annually adds to the value of all descriptions of goods either exported or consumed at home. As geology and chemistry become better known amongst the cultivators of the soil, the labours in the fields must proportionally be increased in importance, scattering, as they soon must do, plenty over a smiling land, and sowing the seeds of benevolent feelings amongst all classes of society within the United Kingdom. The salutary protection which the corn laws extend to agriculture, and the equally salutary protection which other laws afford to every department of industry, have been attended by consequences of much importance already, but the extent of the benefits to be yet reaped from these protective laws is at present beyond all calculation. To cast the eye over England, even at the present time, and to survey the progress already made in agricultural pursuits, calls up the most pleasing reflections in the mind, but not many years can now pass, under the same progressive system, till the entire face of the country assume all the beauties of an extended garden. Then com-

merce and manufactures must flourish in proportion, and keep pace with the prosperity of the agricultural interest. Employment of every description will then be rendered, in the real meaning of the word, productive; and the wages of labour, that only true property after all, will be fully equal to supply the wants and to increase the comforts of the industriously disposed portion of the community. A good harvest season therefore at present is really of more than usual importance, and yearly, must it become more so; for a great portion of our future improvement is founded on retaining the money within the empire, and in expending it amongst the artisans and labourers of all denominations at home; for the wealth of nations can never be increased by employing the inhabitants of foreign nations in the production of any article whatever which can be either manufactured or grown at home. Only the importation of those articles, to the production of which our climate or our habits are not genial, can be attended by national advantages; and to encourage the introduction of any thing from foreign nations, at the expense and to the detriment of agriculture, must be injurious in its consequences to every class in our society. As yet we entertain sanguine hopes that no injury of much consequence, beyond the procrastination of the reaping season, which the state of the weather has latterly occasioned, has yet been done to the crop. Sunshine, genial warmth, and a dry harvest season, will soon, we are persuaded, fill the farmers' stack-yards, and the corn-merchant's granaries, with the produce of an average and good crop of all the necessaries, and of many of the luxuries of life; and then the mercantile and trading interests will find an increased consumption and good payment at home for numerous articles which they manufacture and produce. This much-to-be-wished-for result of the coming crop, should our views prove correct, will strengthen the arch of British society, and render all its links healthy and prosperous. A bad harvest season, on the contrary, must be attended by the most disastrous results to the whole community. The only well-founded complaint respecting the thinness of the wheats sown during the last autumn, may receive a remedy, we trust, in the superior growth and quality of those planted since the beginning of January last; for at all events the spring-sown wheats never had a more favourable season than the present one has been, in as far as it has yet progressed. The experiment has now been made, and the result will show the importance of the improvements already made in agricultural pursuits, for it may fairly be anticipated, from the present appearances in the fields, that the spring wheat crop will be much superior to that of former years, both in quality and in quantity, should the season for reaping and securing it prove only a propitious one.

During the last month the barley markets throughout the country have been in some measure supplied with barleys of foreign growth. The heavy duties imposed on the manufacturers of this article place an effectual bar to its extended cultivation, and whenever any failure occurs in its production that deficiency must, from necessity, be imported from foreign countries, and paid for chiefly in the precious metals. The time was when the exportation of long malt to Holland was an extensive and valuable trade to the maltsters, and, consequently, to the barley growers, but the law has long since deprived them of those advantages. The malt duty, we are persuaded, may be collected with equal security to the treasury and at much less expense to the public, than it is by the present system. The duty should be at once charged

on the raw barley, and the maltster should be permitted to manufacture his malt in that manner which he may think most suitable to the purposes for which it is intended. The excise officer at present prevents even experiments being made in the manufacture of this highly useful and important article, and thus stands in the way of various improvements, which otherwise might be effected in its production. The weight of the duty itself is another almost immeasurable obstacle to the consumption of malt, which it confines considerably under six millions of quarters, a quantity which would be doubled was this vexatious tax even slightly reduced under its present rate. The smallest power of calculation is only necessary to shew that thirty millions of British subjects would consume upwards of twelve millions of quarters of malt if their means could afford to pay for the expense. The production itself of this additional quantity of barley would furnish wealth far more than adequate to supply these means, and a duty of 10s. per quarter would make the revenue larger than 20s. per quarter can make it under the existing system. The consumption of British made spirits is also considerably lessened by the exorbitant duties imposed on their manufacture in England, and the use of foreign smuggled spirits is encouraged by the same cause. England, with sixteen millions of people, consumes only about nine millions and a half of gallons of home-made spirits, and the remaining half of her consumption must therefore be manufactured abroad, and imported into this country, without the payment of any duty whatever. To reduce the English duty to a level with that charged in Scotland would entirely suppress this illicit system of trading, would be a benefit to our barley growers, would materially improve the morals of a portion of the community, and, what the Chancellor of the Exchequer may consider the best of all, would considerably increase the revenue itself. Although during the whole of last month the supplies of British grown barley were unusually small, still the large foreign arrivals did more than make good any existing deficiency, and a decline of about 2s. per qr. was the necessary consequence, which has raised the duty levied on its importation from foreign states to 9s. 4d. per quarter. This circumstance must—for a time, at all events—place a limit to large arrivals of it from abroad; and it is to be hoped that a luxuriant crop at home will soon put an entire stop to this department of the corn trade, for we find no complaints whatever in circulation against the present appearance of the barley crop: on the contrary, it is almost universally favourably spoken of. In the fine barley lands in Suffolk and Norfolk, a little more rain will do much good, and render the produce even more valuable than it is at present expected to be, favourable as these expectations undoubtedly now are; but as we have already, and frequently stated previously, the collection of nearly twelve millions sterling of revenue from each barley crop, does not encourage the extension of the production of this most valuable article, and is deeply injurious to the agricultural interest, and to the great body of the people. Excessive taxation is not more injurious to the community than it is to the exchequer itself, for its operations are on every occasion prejudicial to the treasury, for the benefit of which alone they were imposed. Moderate rates of duty, on the contrary, generally exceed the calculation of the amount to be raised from them, and this would be the result of a material reduction in the existing rates of the public charges on malt generally, and on the home-made spirit duty levied in England.

In all the great markets of consumption, the supplies of oats from Great Britain and from Ireland, since our last report, have not been equal to the demand, and it has been requisite to enter for home consumption a considerable quantity of foreign oats to fill up the deficiency. Some low or other, oats are better protected from foreign importation than any other description of grain, and the treasury has reaped some advantages from the duties collected on the present occasion. The last crop of oats, particularly in Ireland, was extremely short in quantity, and equally inferior in quality. The consequence has been a falling off in the quantity imported from the sister Ireland, but this has been sufficiently made good by oats of foreign growth, to prevent any exorbitant enhancement of their value. The last crop now is drawing to its close, and there will not be the usual quantity of old oats in the country, when the new crop is brought into the market for consumption. This may render an additional importation still necessary from abroad, but still there is little chance of prices being otherwise than moderate. The appearance in the fields at the present time indicates a most abundant crop of this article, and in Ireland it is in a particular degree luxuriant. In due season, therefore, abundance will be forwarded from that country to all our markets, and another argument will thus be furnished of the vast importance of the corn laws to every class of society in the United Kingdom. It is through the protection of these laws that agricultural improvements make such rapid progress in Ireland, where tillage may with great truth be described as only in a state of infancy. In a few years, however, with the patronage of the British markets, and with that degree of preference which the corn laws extend to Irish oats in them, over those of foreign growth, the increase in the amount of agricultural products of every description will render supplies from foreign nations and communities entirely unnecessary, and keep the value of all the necessities of life within moderate bounds, and in every respect accommodating itself to the wages of productive labour. Then indeed our master manufacturers, with every prospect of success, may endeavour to compete, in all the markets on the continent, with foreign manufacturers, and they may increase their commercial operations abroad by this most legitimate source of business. But agricultural improvement, particularly in Ireland, must be the foundation stone on which any addition to commercial and manufacturing prosperity must rest itself, for it can never flourish on any other principle; on the contrary, every check which agriculture receives from the elements, or from any other cause, is more severely felt by the trading interest than by the tillers of the fields themselves. The importation of foreign grain during the last two years, by rendering money scarce, and consequently dear, has clearly demonstrated this fact.

With beans the markets generally have been but moderately supplied, and very few samples of peas now appear on sale. Both of these articles continue to command high prices, and as the appearances in fields of both are not so very favourable as could be desired, an opinion is entertained that higher prices may yet be obtained for them within a week or two. The crop, however, may yet disappoint all their predictions respecting its inferiority, for the July rain, at all events, cannot have done any injury to these articles, but its effects ought to have been the reverse, until the period for ripening them arrived.

The potato crop has still a luxuriant appearance, and should it be gathered only in good condition, it

must have a wonderful influence in supplying the predicted deficiencies in the wheat and pulse crops, if any actually exist; but dry and warm weather, during the next month and the present one, will, we are satisfied, yet remove every cause of complaint, whilst a dripping harvest season, on the contrary, must be attended by very serious consequences to the community.

The information received in the course of last month from abroad respecting the state of foreign corn markets has not been of much interest to the trade in this country. All these markets are chiefly regulated by the prices in London, and consequently the transactions in none of them have been of any importance. By New York letters, dated in the first week in July, we learn that the demand for flour and wheat throughout all the corn districts in the United States remained dull, and no sales to any extent had latterly been effected. The new crop of wheat is generally favourably spoken of, although it is not supposed to be so abundant as that of the previous season was. A considerable quantity of flour, in particular, would soon after these dates be forwarded to England, which had been purchased at prices so moderate, that the speculators in it would not lose any money after the payment of our present rates of duty. In the early part of last month appearances here had induced merchants to transmit to America orders for more extensive purchases, and the quantity therefore which may be shipped from thence to this country during next autumn will probably be large. The complaints against our corn duties continued very naturally to be numerous amongst the American agricultural and shipping interests, for the employment of their agricultural labourers in the production of wheat for British consumption in preference to our present system of employing our own, was to a certain degree hurtful to agriculture and to trade in the United States, and consequently the removal of all restrictions in the corn trade continued to be ardently desired amongst our transatlantic brethren.

From the Mediterranean and Black Seas the letters received are in due course of post from the various corn markets in those extensive districts, and in all of them we find that considerable purchases of wheat had been made for British account, as it was supposed, at prices which would sink money, if sold here at our present currency. The excitement which the unfavourable reports circulated latterly respecting the state of our wheat crop must still cause these purchases to be increased, and considerable quantities of these descriptions of wheats may be consequently expected during the remainder of this, and the beginning of the next year.

From the Baltic, and from all the corn markets without the Baltic Sea, the arrivals of wheat already have been large, and will be much larger if the general expectations of a considerable reduction in our rates of duty be by the event confirmed. These wheats have been purchased at prices so moderate that they must be leave a fair profit to those who have been engaged in the speculation. Considerable shipments from all these ports are still on their passage, and as long as the navigation remains open, the supply of wheat from the north of Europe will be increasing in all our markets. This state of the foreign corn trade has already caused not a little nervous feeling amongst foreign bankers here, and amongst the dealers in the sale and purchase of foreign bills of exchange. They anticipate a demand for the precious metals, and its necessary consequence, a scarcity of money, and an increase in the present scale of interest charged on the loan

of it. Already, indeed, the rates of the foreign exchanges are more unfavourable to this country than they were a month ago, and low corn duties, which a deficient crop must occasion, will greatly increase this evil, and do equal mischief with an entirely free corn trade itself. Favourable harvest weather alone can avert great evils, for to it may the country be indebted for the placing of an effectual bar to the exchange of gold for foreign grain, which must be the consequence of an unpropitious harvest season.

CURRENCY PER IMPERIAL MEASURE.

JULY 27.

	Per Qr.	Per Qr.
WHEAT, Essex and Kent, red ..	72 71	White 72 78 84
Suffolk and Norfolk ..	70 72	Do .. 74 78 82
Irish ..	50 60	Do .. 60 64
Old, red ..	74 76	Do .. 78 80
RYE, old ..	56 58	New .. 41 45
BARLEY, Grinding 30 32 34 Malting 38 40		Chewalier 40 42
Irish ..	25 27	Bere .. 24 25
MALT, Suffolk and Norfolk ..	70 75	Brown .. 58 60
Kingston and Ware ..	68 70	Chewalier 70 76
OATS, Yorksh. & Lincolnsh., feed ..	27 30	Potato .. 29 32
Youghall and Cork black ..	26 27	Cork, white 28 29
Dublin ..	27 28	Westport 29 31
Clonmel ..	29 30	Limerick 28 30 32
Londonderry ..	29 30	Sligo .. 29 31
Newry ..	30 32	
Galway ..	28 34	
Waterford, white ..	26 28	Black .. 26 27
Scotch feed ..	30 32	Potato .. 32 34
BEANS, Tick, new ..	40 44	Old .. 44 48
PEAS, Grey ..	40 42	Maple .. 40 42
White ..	40 42	Boilers .. 44 46 48
SEED, Rape .. 30l. 32l. Irish .. 25l. per last.		
Linseed .. 41 46		
English Red Clover, fine, 70 80 90 per cwt.		
White .. 66 68 74		
Mustard, White 11 12 brown 18 20 per bush.		
Tares, old .. 44 .. new 60 68 per qr.		
FLOUR, Town-made 62 .. Suffolk 52 54 per sk. of 280 lbs.		
Stockton and Norfolk .. 52 54		

FOREIGN GRAIN AND FLOUR IN BOND.

WHEAT, Danzig ..	56	60 65
Hamburg ..	53 58	
BARLEY ..	22 24	
OATS, Brew ..	24 27	Feed ... 21 24
BEANS ..	32 36	
PEAS ..	36 40	
FLOUR, American, per bri ..	32 34	Baltic .. 32 34

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Week ending						
June 12th ..	67 7	35 9	27 6 37	1 45 1	44 6	
19th ..	67 4	35 10	28 4 36	8 45 0	43 1	
26th ..	67 8	35 5	27 11 37	3 45 3	45 6	
July 3rd ..	67 8	36 1	27 10 34	0 45 4	43 11	
10th ..	68 0	34 8	28 5 35	3 45 8	44 10	
17th ..	69 6	33 11	28 2 36	0 46 1	46 1	
Aggregate Average of the six weeks which regulates the duty ..	68 1	35 3	28 0 36	2 45 5	44 8	
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London ..	16 8	0 4	4 9 15	6 2 0	3 6	
Do. on grain from British possessions out of Europe ..	0 6	0 6	2 6	0 6	0 6	0 6

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, July 24th, 1840.	AVERAGES from the corresponding Gazette in the last year, Friday, July 26, 1839.
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	s. d.		s. d.
WHEAT ..	69 6	WHEAT ..	69 8
BARLEY ..	33 11	BARLEY ..	37 8
OATS ..	28 2	OATS ..	27 1
RYE ..	36 0	RYE ..	45 0
BEANS ..	46 1	BEANS ..	41 0
PEAS ..	46 1	PEAS ..	40 11

Account shewing the Quantities of Grain, Meal and Flour, imported into the United Kingdom, during the month ended the 5th July, 1840; the Quantities on which Duties have been paid for Home Consumption during the same month, and the Quantities remaining in Warehouse at the close thereof.

Foreign Grain and Flour.	Quantity imported.	Quantity entered for consumption.	Quantity remaining in warehouse.
	qrs. bush.	qrs. bush.	qrs. bush.
Wheat, from British Possessions ..	..	11 4	118 0
Wheat, foreign ..	284023 7	148427 6	520134 7
Barley, do.	51756 6	41000 7	10174 7
Oats, do.	51724 0	29376 7	81308 5
Rye, do.	1252 3	136 4	3945 5
Peas, do.	19620 2	5391 2	28251 6
Beans, do.	18013 3	7253 3	36799 0
Indian Corn, do.	743 1	743 1	61 6
Buck Wheat, do.	256 3	256 3	....
Malt, do. ....	....	....	....
	cwts. qrs. lbs.	cwts. qrs. lbs.	cwts. qrs. lbs.
Flour, from British Possessions ..	15163 0 7	15172 2 10	68 0 5
Flour, foreign ..	97933 1 12	85641 1 3	32445 3 2

STOCK OF GRAIN, &c., IN BOND, IN THE PORT OF LONDON, ON THE 5th JULY.

Wheat.	Barley.	Oats.	Peas.	Beans.	Rye.	Flour.
qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	cwts.
260,491	7,182	35,818	5,970	2,454	102	51,023

Cloverseed, 18,817 cwts.

SEED MARKET.

JULY 27.

Owing to an inquiry lately experienced for Cloverseed in bond, the value of this article has rather advanced; the transactions have not, however, been sufficiently general to allow of quotations being given. Canaryseed was in demand to-day, at the late improvement. New Carraway brought 1s. to 2s. more than on this day week, and Rapeseed was also the turn dearer.

Linseed, English, sowing 60 56		
Baltic ..	—	—
Mediterr. & Odessa ..	—	—
crushing 41 48 per qr.		
Hempseed, small ..	34 36	large .. 38 40
Coriander ..	10 16	old .. 18 — per cwt.
Mustard, brown ..	16 18	white .. 11 14 pr. bush.
Turnip Seed, new Swedes ..	—	10 18
Trefoil ..	10 23	fine new 25 26
Rapeseed, English ..	30l. 32l.	foreign, 28l. 30l. per last.
Rye Grass, English ..	50 42	Scotch 18 40
Tares, winter ..	—	Spring — —
Large, foreign ..	ss. 6d.	ss. 6d.
Canary, new ..	80 82	extra 84
Carraway, old ..	50 52	new 50 52

PRICES OF HOPS.

BOROUGH, July 27.

The accounts of the Hops generally continued as bad as ever; duty 45,000. The season has now so far advanced, and the weather has been so unkindly, that the chances of recovery are diminished daily. Our report from Canterbury states that the bad grounds are worse, and the good becoming bad. Market very brisk, and prices continuing to look up.

Kent Pockets, 1839	£7 0 0	to £8 0 0
Do. choice do.	7 10 0	9 9 0
Sussex do.	6 6 0	7 0 0
East Kent pockets, do.	7 0 0	9 9 0
Kent bags do.	6 6 0	8 0 0
1838's	4 15 0	6 6 0

WOOL MARKETS.

BRITISH.

JULY 27.

The same stagnation pervades the trade, and much anxiety is felt concerning the approaching sales, as they

will most probably regulate the market, either by depressing prices yet more, or by imparting a degree of buoyancy to them.

	s.	d.	s.	d.	
Down Teggs	1	2	to	1	3
Half-bred Hogs	1	1	1	2	1
Ewes and Wethers	0	11	1	0	
Flannel do.	1	0	1	2	
Blanket Wool	0	5	0	7	
Skin, Combing.....	0	10	1	1	1

LIVERPOOL, July 25.

SCOTCH.—The report of the results of the different fairs in the north have now reached us, and have had an unfavourable effect, as there seems to have been little doing, and that at fully lower rates. The first cargo of new Highland laid wool arrived in port this day, and been offered at our highest quotations, but without a purchaser. We seldom have remembered things remain so long dull, and without any prospect of improvement. In Cheviots and cross wool there is nothing doing, but continue our quotations as before.

	s.	d.	s.	d.	
Laid Highland Wool, per 24 lbs..	7	9	to	8	0
White do. do.....	9	6	11	0	
Laid Crossed do. unwashed..	8	9	9	6	
Do. washed do.....	9	0	10	6	
Do. Cheviot unwashed do.	9	6	11	0	
Do. washed	13	0	15	0	
Cheviot white	21	0	24	0	
Import for the week.....	148	bags.			
Previously this year	3984				

FOREIGN.—Very little business was effected by private contract this week, but the public auction of yesterday was considered to have passed off in a tolerably favourable manner. All the New South Wales new crop brought fair prices; the condition and quality were not so good as those offered in March last, and we quote a decline on the rates then realized of 2d. per lb. on clothing, and 3d. per lb. on Combing Wool. The Spanish Germanized Odessa and Portugal were 3d. per lb. cheaper, and the East India brought full prices. Sold by Auction.—934 bales Australian and Tasmanian Wools, viz.:—Prime Combing, none; Fair Combing, 1s. 6d. to 1s. 8d.; Low Combing 1s. 5d. to 1s. 6d.; Fine Clothing, none; Fair Clothing, 1s. 5½d. to 1s. 7½d.; Low Clothing, 1s. 4d. to 1s. 5d.; Lambs, 1s. 5d. to 1s. 8½d.; Scoured, 1s. 4d. to 2s.; Skin, 11d. to 1s. 3d.; Locks and unwashed, 9½d. to 1s. 1d. Spanish:—184 bales R., 16d. to 19½d.; F. 11d. to 16d.; S., 12½d. to 14½d.; A; 1s. 1½d. to 1s. 3½d.; Portugal, 137 bales R., 13d. to 13½d.; F., 10d. to 11d.; S., 10d. to 10½d.; A., 11d. to 11½d.; Odessa, 134 bales (Germanised), 1s. 4½d. to 1s. 6d.; Austrian, 177 bales, 1s. to 1s. 1½d.; East India, 182 bales white, 8½d. to 8½d.; yellow, 8½d. to 7½d.; grey, 3½d. to 4½d.; black, 4½d. to 5d.; Smyrna, 145 bales (withdrawn); Mohair, 37 bales, 1s. 1d.; Sundry, 89 bales—Total, 2,019.

FOREIGN.

JULY 27.—Nearly 8,000 packages of Colonial and Foreign Wools are announced for sale by auction at Garraways, commencing on Wednesday next, and continuing for about ten days. By private contract exceedingly little is doing, while the imports are limited.

MANURES.

Subjoined are the present prices of several sorts of manure:—

Bone-dust, 21s. per qr. of 8 bushels.
Half-inch ditto, 20s. per qr. do.
Rape-dust, 6l. 15s. per ton.
Rags, 4l. to 4l. 10s. per ton.
Graves, 5l. to 5l. 10s. per ton.
Gypsum, 38s. per ton.
Salt, 2l. 5s. dirty, 2l. 15s. clean, per ton.
Carbon, 12s. 6d. per qr.
Soap ashes, 10s. per ton.
Artificial Manure, 12s. per qr.
Poittevin's Patent Disinfected Manure, 13s. 6d. per qr.
Nitrate of Soda, per cwt.—17s. 3d. to 18s. 0d.
Nitrate of Potash or Saltpetre, 24s. to 27s. per cwt.

PRICES OF SHARES.

No. of Shares.	IRON RAILWAYS.	Price per Share.	Div. per Share per Ann.
6,300	Birmingham and Derby Junction 100l sh	80½a2l	
9,500	Ditto and Gloucester 100l sh	80l pd	
16,000	Bristol and Exeter. 100l sh	50l pd	
9,300	Ditto and Gloucester. 50l sh	2½ pd	
7,600	Cheltenham & Great Western Union 100l sh	50l pd	
5,000	Chester and Crewe .. 50l sh	.....
3,000	Clarence (Durham)..... 100l sh		
8,000	Dublin and Kilkenny 100l sh	2½ pd	
64,000	Eastern Counties 25l sh	2½ pd	
18,000	Edinburgh & Glasgow 50l sh	35l pd	
10,918	Grand Junction	100l sh	25½a0l
10,918	Ditto Half Shares.....	50l sh	30l pd
10,000	Great N. of England 100l sh	65l pd	
25,000	Great Western 100l sh	65l pd	
26,000	Ditto Half Shares.....	50l sh	30l pd
	Ditto Debentures.....	108½a4l	
8,000	Hull and Selby.....	50l sh	45l pd
36,000	London and Brighton 50l sh	35l pd	
26,666	London & Croydon. Av. 14l 18s 6d	11½a2l	
6,354	Ditto Script	9l sh	11½a12l
30,000	London and Greenwich	20l sh	20a0l
9,000	Ditto New	10l sh	16l a0l
80,000l.	Ditto Debentures (various amounts)		
24,000	London & Blackwall 25l sh	20l pd	21½a4l
1,600	Lecicester and Swannington. 50l sh	7½l	
2,100	Leeds and Selby.....	100l sh	
5,100	Liverpool and Manchester. 100l sh	184l	
11,475	Ditto Quarter Shares	25l sh	44½l
7,998	Ditto Half Shares	50l sh	38½l
36,000	London & S. Western, late London and Southampton Av. 38l 17s 9d	57½a8l	
6,000	Ditto Portsmouth Branch 60l sh	30l pd	37½a8l
25,000	London & Birmingham. 100l sh	90l pd	181a2l
26,000	Ditto Quarter Shares 25l sh	5l pd	29½a30l
31,250	Ditto New 32l sh	24l pd	49½a50l
13,000	Manchester & Leeds 100l sh	53l pd	95½a7l
13,000	Ditto Half Shares	50l sh	25l pd
30,000	Manchester and Birmingham. 70l sh	30l pd	29½a0l
15,714	Ditto ditto Extension 70l sh	7l pd	4½a½l
10,000	Midland Counties	100l sh	88½a90l
15,000	North Midland	100l sh	87½a89l
15,000	Ditto Half Shares. 40l sh	30l pd	83½a0l
12,000	Northern & Eastern 100l sh	30l pd	21½a21l
3,723	Severn and Wye... Average 27l sh	43½l	
1,000	Stockton and Darlington. Average 100l 12s 4d	250l	
28,000	S. Eastern and Dover 50l sh	23l pd	7l
6,000	York & North Midland	50l sh	71½a8l

JOINT STOCK BANKS.

10,000	Australasia Bank (Chartered) 40l sh	61½a8l	8l per ct
5,000	Ditto New (Chartered) 40l sh	56½a7½l	
20,000	Bank of B. N. America (Chart.) 50l sh	40l pd	
30,000	Colonial Bank (Chart.) 100l sh	25l pd	37½a8l
4,000	Ionian State (Chart.) 25l sh	5l pd	5½a6l
30,000	London and Westminster Bank 100l sh	20l pd	34½a5½l
60,000	London Joint Stock Bank 50l sh	10l pd	12½l 13½l
12,432	Do New, 10l sh issued at 11 pm	5l pd	
20,000	National Bank of Ireland. 50l sh	17½l	18½a0l
10,000	Do. Provincial Bank of England 100l sh	35l pd	37½a8l
7,739	Do. New 20l sh issued at 2½ 10s pm	10l pd	10½a11l
90,000	Provincial Bank of Ireland 100l sh	25l pd	44½a45l
4,000	Ditto New.....	10l sh	17½a18l
90,000	Union Bank of Australia. 25l sh	22½l	30½a0l
6,000	Union Bank of London 50l sh	4½l pd	5½a½l
50,000	West of England and South Wales District Bank .. 20l sh	12½l pd	12½a0l



The cow is a very common animal in the island of Java, and is used for milk and for work. It is a very hardy animal, and is able to withstand the heat of the climate. The cow is a very useful animal, and is a very common sight in the island of Java.



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Portrait of a young Spaniel

From a drawing by J. H. P. G. 1840

THE FARMER'S MAGAZINE.

SEPTEMBER, 1840.

No. 3.—VOL. II.]

[SECOND SERIES.

PLATE I.

The engraving of the short-horned Bull, "Clementi,"—for which the premium of fifteen sovereigns was awarded to R. M. Jaques, Esq., of St. Trinians, near Richmond, Yorkshire, as the owner of the best short-horned Bull, calved since the 1st of January 1838, against ten other candidates at the second annual meeting of the Royal Agricultural Society of England, held at Cambridge on the 15th of July last,—is from a painting by Mr. W. H. Davis, of Chelsea.

Mr. Jaques has a superior herd of the improved short-horns, and has been a successful exhibitor of Clementi at the Richmondshire and Barnard Castle Agricultural Shows, on both occasions against Mr. Raine's Bull, "The Colonel," (which obtained the second premium for the best Bull of any age, and the first premium for the best two-years-old Bull at the third annual meeting of the Yorkshire Society, held at Northallerton on the 5th of August) and others. Clementi was defeated at Northallerton, a decision which seemed to create more surprise than any other given by the judges, either at Northallerton, or even at Cambridge, where some of them appeared to several, very questionable. Mr. Jaques also obtained the premium of ten sovereigns for the best short-horned yearling Heifer at Cambridge, the only two animals exhibited by him.

Clementi was bred by Mr. Parkinson, who had his dam Cassandra, by Miracle, and his sire Cossack, (1880 in the Herd book) and an extensive and select herd of the improved short-horn breed on his farms at Layfields, and South Clifton, Notts. The Bull Calf, "Collard," sold to R. M. Fox, Esq., of Fox Hall, Ireland, at the Babworth sale, for 200 guineas, being then only eight months old, is own brother to Clementi.

PLATE II.

PARTRIDGE SHOOTING—RETRIEVING.

(For Description see page 166.)

ON DRAINING LAND.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—In looking over the last number of your magazine, I observe the "queries" of "A Farmer north of the Tweed," who requests information regarding the drainage of moss land, and whether wood will suit for soles to drains in such a description of soil. As I happen to have had it in my power to gain a little information as to draining moss, beg, through the medium of your valuable journal, to suggest a few observations by way of answer to his "queries," and trust they shall in some measure prove satisfactory to him.

OLD SERIES.]

The first thing I conceive, that is necessary, before commencing to drain any portion of land, is to obtain a knowledge of the soil, and the different stratifications of which that soil or subsoil may be composed, before we can condescend upon what distance the drains ought to be from each other, and their depth, so as to secure a thorough drainage; and this principle holds equally good with regard to moss, as other soils, although our information here is much more easily acquired than in other cases, from the fact, that moss is more alike or uniform in quality, in particular situations, than any other kind of soil.

Moss, or peat soil, may be said to be of three kinds, viz., 1st. An unctuous kind of moss, of a free texture, easily imbibes water, and rich with vegetable

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[No. 3.—VOL. XIII.

decomposition. This kind of moss is easily drained although sometimes very wet, is not difficult to cultivate, and under judicious management will render a profitable remuneration to the improver. 2nd. A fibrous quality of moss, not of so much value as the preceding, not quite so easily drained, at least not at the expense, being of a more spongy nature and having consequently a greater tendency to retain moisture, but may be turned to profitable account by being laid out into meadow, not being so well adapted as the foregoing quality for an alternate system of husbandry: and 3rd. Black retentive moss, very fine and close in its particles—generally very barren with regard to vegetable production, is much used for fuel in the south and west of Scotland, and when cut and dried, is very hard, but when wet with water after being dried in the sun, goes down like calcined lime. This kind of moss is scarcely ever so wet, at least internally, as the two first mentioned kinds, being often of an immense depth and exceedingly retentive, the water falling upon the surface remains there and collects into pools in the hollow places, where it goes off gradually by evaporation.

Not knowing to which of the above classes the moss may belong, that your querist intends draining, I have thought it proper to go into the above detail or distinction, and shall very briefly illustrate the mode of procedure I would adopt in the particular circumstances. Moss land falling under the first mentioned head, and where it exists to a considerable depth, is almost universally surrounded by rising ground, and invariably contains a considerable quantity of spring water. The other kinds of moss are to be met with in both high and low land; the first thing to be done in the operation of draining, is, to cut a proper drain or outlet to convey the water from the field or portion of ground to be drained; a deep drain should then, in my opinion, be cut round the moss, betwixt the hard or dry and wet land, to cut off the principal source of spring water, and thereby greatly facilitate and secure a thorough surface drainage. Afterwards cut the main drains or leaders in the most suitable direction for receiving the water from the collateral drains. Your querist says, he can afford to have his drains four feet deep, and I would recommend him to cut his main drains four feet deep at the lowest end or side of the moss, where they discharge themselves into the chief main, decreasing in depth as they recede from thence, so as to secure the necessary level to carry off the water. The collateral, or parallel drains, I would cut from three to three-and-a-half feet deep, and from fourteen to eighteen feet asunder, in moss falling under class *first* and *second*; and from two-and-a-half to three feet deep, and from ten to sixteen feet apart in moss, falling under class *third*, varying the distances, and being directed of course according to quality and appearances.

A large extent of moss land, part of it lying in the most uncultivated and wet state imaginable, belonging to that spirited and enterprising nobleman the Earl of Stair, in Wigtonshire, having been drained under my father's directions, and nearly according to the foregoing plan, which contains my own notions regarding peat soil, I have thus had it in my power to see that system put to the test, and it gives me pleasure to add that, in every case where acted upon, it has succeeded without a failure. A part of the mosses drained on his lordship's estates here, had wooden soles laid in the drains, which seem to suit very well where there is a constant run of water and will endure for many years; the kind of wood we have generally used, and

still use for that purpose, is beech, and the thickness of the plank or deal is never less than one inch, and I would not recommend wooden soles to be used of less thickness, but even stronger, if expense was not particularly looked to, because there is no doubt wood, in the course of time, will decay; and the more effectually the work is performed at first, the longer period will it endure, and afford the greater satisfaction. I would not, however, by any means recommend wood to be used as soles for drains in land where there is an alternation of wet and drought, because wood in such circumstances is placed in the most susceptible state for decomposition, and especially beech wood, and on which account the expectations of the improver might be very much frustrated or defeated. Soles of flat tile or slate should always be used on a hard bottom, or where there is not a great run of water or constant moisture. And I may notice here, that too much care and attention cannot be given to the draining of moss or peat soil, and also to the drains after the work is completed, as any person who has had experience in draining moss must be aware that drains, in such a situation, are more liable to go wrong than on other soils, (except, perhaps, in pure sand,) from the sitting down or compression of the moss after the water has run off,—the places containing the greatest quantity of moisture sinking most. The tail drains ought also to be kept particularly clear, and not allowed to grow up, which they do rapidly if not attended to, and thus throw the water back into the main leaders and collateral drains, and render the whole operation of no effect.

Some drainers consider it unnecessary to cut their drains in moss so deep as three or three and a half feet, but I have always found it useful to have them cut of such depth, seeing that moss land containing a tolerable portion of water shrinks and consolidates very much when the drains act properly, and when the drains are not at least three feet when opened, there is not sufficient depth when the moss is dry for improving the surface, especially where the surface is coarse or useless, and a considerable portion of it requires to be burned or rotted off; besides, a deep drain always draws better than a shallow one. An intelligent drainer, however, will always keep these considerations in view when he commences his operations.

Trusting that these observations may be of some service to "A Farmer north of the Tweed," and that you can give them a place in the next number of your magazine, I remain, Sir, your most obedient servant,

J. C.
Culhorn, 19th August.

IMPROVED CONDITION OF THE LABOURERS.—But, however explained, this and the facts mentioned above, show conclusively that the beneficial influence of the extraordinary improvements in arts and sciences made during the last sixty or seventy years has not been counterbalanced by the increase of population, and that it has not been confined to the upper and middle classes. On the contrary, these improvements have been especially beneficial to the labourers. The latter are at this moment incomparably better fed, better clothed, and better lodged, than at any former period of our history; and, in point of fact, daily enjoy, and reckon as indispensable, a great number of articles of convenience and luxury that formerly could rarely be obtained even by the richest lords. — *McCulloch's Geographical, Historical, and Statistical Dictionary, Part IV.*

ON THE KENTISH CORN-SCYTHE AND BINDING-RAKE.

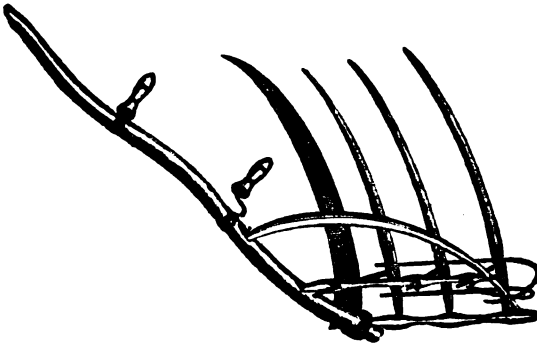
By HENRY BOYS, Esq.

(From the Journal of the Royal Agricultural Society.)

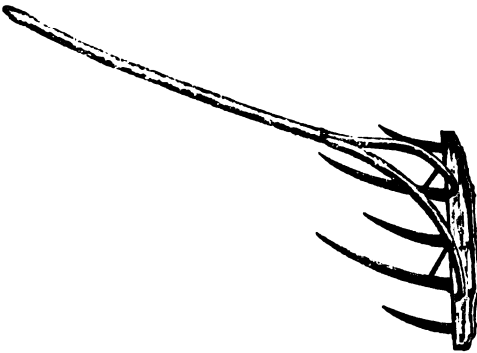
TO HIS GRACE THE DUKE OF RICHMOND, PRESIDENT OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MY LORD DUKE.—I have the honour of presenting to your Grace, as President of the Royal Agricultural Society of England, a Kentish corn-scythe, also a binding-rake, in the hope that the advantageous system of binding barley and oats may become more

known, and more generally adopted.* I enclose herewith three sketches,—1st, of the scythe with the cradle; 2nd, of the binding-rake; 3rd, showing the latter as held for the purpose of binding.



1. The Scythe with the Cradle.



2. The Binding-rake.



3. Mode of holding the Binding-rake for the purpose of binding.

In using the scythe for barley and oats, the great art is to leave a short "mane" or ridge of stubble, so that the ears of corn may rest thereon, and be kept from touching the ground, which is done by setting in and striking out, about five inches from the soil, taking care to swing the scythe well round, which will cause the corn to fall on the mane. The price per acre for mowing barley, when the acre yields four quarters, is 3s., with beer; and for oats a trifle less. A good labourer will mow two to three acres per day, as the growth may be large or otherwise. After the barley or oats have lain a sufficient time to ripen and become thoroughly dry, the binding rake is brought into operation. The bands are previously made by old men, incapable of laborious work, at the cost of 4d. per bundle of 100 bands; or by the binders themselves, in wet weather, or before the corn is dry in the morning—the preparation of which in such case, is usually included in the payment for binding. In order to secure as great length as possible, the bands are made from the barley or oats pulled up by the root, previous to the commencement of the harvest, and before the straw is perfectly ripened.

It is generally turned over, and the mould beaten off the roots with a flail, after which it is bound in sheaves, taken to the barn, and the grain slightly thrashed off, previously to making the bands.

The labourer takes the rake with both hands, as shown in the sketch (3), he proceeds to collect the corn, walking backwards, or rather sideways, his face towards the head of the rake, and the leg next thereto, keeping the straw within the rake as he steps along. As the rake fills, he lifts what he has collected on the unraked corn, until he has sufficient for a sheaf: he then throws the rake down with the teeth upwards, and binds the sheaf, taking hold of each end of the band—one in each hand—enclosing within it the corn so collected together, and thrusting his knee into the centre of the sheaf, in order to press it as closely as possible for binding tightly. While he is doing this, a boy, who can deliver bands to seven men, lays one on the handle of

* Mr. Boys having presented to the Society a set of the reaping implements referred to in this paper, they have been deposited in the rooms of the Society for the inspection of the Members.

the rake, and the man places his hand, which is next the handle of the rake, on the band, changing it, accordingly, as the row of corn to be bound may lie for him to work with the right or left hand before.

The price for binding is the same as for mowing, and a man will bind as much in a day as he will mow. Towards the evening the sheaves are collected and laid together in tens, by placing four on the ground, the ears or corn end inwards, three across them, taking care to put the corn end of the middle one in an opposite direction to the two others; two more are placed on these, and the tenth is laid on the top of all, which secures the whole from rain: the ears or corn ends, of the two sheaves of the second row, those of the third row, and that of the top sheaf, being placed in the direction which will afford the most sunny aspect. Although, I have known barley remain in the field, after being so bound and laid together for three weeks in bad weather without injury (care being taken to replace the sheaves when blown off), it is much better, and far more prudent, to carry it immediately it is bound, in which case the sheaves are merely laid together for convenience in loading, for which purpose another labourer is needed; and this universal. After the barley is so laid together, provincially termed "shocked," the field is raked with a horse-rake commencing with the part to be first carried; or, if the corn be carried as soon as bound, the operation of horse-raking is deferred till after the field is cleared.

The great advantage attending this mode of harvesting corn is undeniable; the despatch with which a

field is cleared is truly astonishing, while the labour and expense saved in carrying, stacking, unstacking, and thrashing, are sufficient recommendations for its adoption.

The corn-scythe was originally intended, and used solely for mowing barley and oats, but latterly a very large proportion of the wheat on poor land in East Kent has been harvested by this useful implement; which labour is performed by striking the wheat against the standing corn. It is then collected by the wife, and laid on bands prepared by the children: the man binds the sheaves in his way back, the woman carrying the scythe. The payment for so cutting wheat is 7s. per acre, with an allowance of four quarts of good beer per day, when the produce is about three quarters per acre, and 6d. more for every additional sack of wheat per acre. A man with his family will cut $1\frac{1}{2}$ acre per day, so that his earnings will be 10s. 6d., and there is no work to be performed during the harvest more anxiously sought for by the labourer who has a family to assist him. Frequently two men, or two men with a boy, are so employed—the men relieving each other in the use of the scythe—the boy preparing the bands. The cost of the scythe complete, which is found by the labourer, is eleven shillings; and that of the rake three shillings and sixpence.

I have the honour to be, my Lord Duke, your Grace's most obedient and very faithful servant,

Waldershare, near Dover.
April 16th, 1840.

HENRY BOYS.

A REPORT OF PRACTICAL OPERATIONS IN THE COMPARATIVE USES OF THE SICKLE AND SCYTHE IN HARVESTING WHEATS.

By JOSHUA RODWELL, Esq.

(To the Secretary of the English Agricultural Society.)

SIR,—The very great and vital importance of securing our crops in good condition, and more especially the wheat crops, not only to the farmer himself, but (in this uncertain and varied climate) to the community at large, induces me to request your permission and aid in circulating, through the medium of your journal, the results of some practical operations in the uses of the sickle and scythe in harvesting two varieties of wheat

during the harvest of 1839. The following statement applies to six fields, viz. :—

	A.	R.	P.
No. 1	21	0	0
2	30	0	0
3 and 4	33	0	0
5 and 6	16	0	0
	100	0	0

OPERATIONS.					
Date.	Weather.	Talavera Wheat reaped, 21 Acres.	Talavera Wheat mown, 30 Acres.	Golden Drop Wheat reaped, 33 Acres.	Golden Drop Wheat mown, 16 Acres.
August 6, Tuesday	fine	20 men reaping	.....	20 men reaping	
7, Wed.	showery ..	do. part of day	.....	do. part of day	
8, Thursd.	fine	do. finished	.....	reaping	
9, Friday	fine .....	.....	20 men mowing	reaping	
10, Saturd.	fine .....	.....	do.	do.	
11, Sunday	7 hours' rain	.....	.....	.....
12, Monday	showery ..	.....	do. part of day	do. part of day	
13, Tuesday	light rain ..	.....	do. do.	reaping finished	
14, Wed.	showers...	.....	finished	.....	{ 20 men mowing
15, Thursd.	fine .....	.....	.....	.....	{ part of the day
16, Friday	4 hours' rain	.....	.....	.....	mowing
17, Saturd.	showers...	.....	.....	.....	mowing finished
18, Sunday	5 hours' rain	.....	.....	.....
19, Monday	showery ..	wheat sprouting	.....	wheat sprouting	
20, Tuesday	showers...	do.	.....	do.	
21, Wed.	fine	unfit to cart	carted	unfit to cart	
22, Thursd.	fine	do.	{ finished carting, }	unfit	{ carting, in good
			{ in good order }		order.
23, Friday	fine	{ carting wheat, }	.....	{ Sheaves opened, }	
		{ injured }		{ carted in the }	
				{ afternoon }	

In the operations of mowing (using a common scythe), the division of labour to each company of twenty men was as follows, viz.: eight men mowing, eight men tying up, one man raking (using what is commonly called a drag-rake, about 6 feet long in the head, with 25 wooden teeth), one man tying up the rakings, and two men shocking, or stooking, in the sheaves; the men changing their respective employments as they find most convenient to themselves, and thus completing their work as they proceeded.

With the desire of fairly testing these different systems in a season of so much difficulty, I gave directions to my bailiff (an unwilling witness, as will be seen, in favour of scythe-operations) to furnish me with the result of his observations in writing, which I beg herewith to subjoin.

Buckanay Farm, Nov. 1839.

"SIR,—According to your wishes I shall endeavour to give you a short account of the proofs we had last harvest of the utility of mowing wheat, instead of reaping. We may, perhaps, live several years and not see the thing again so clearly proved. Harvest was commenced by reaping on the two farms on the 6th of August by two companies, 20 men in each company, with Talavera wheat, at the Hall farm, and with golden drop at the Buckanay farm, and continued the same on the 7th and 8th. On the 9th the Hall company began mowing and tying up, which that company continued to do through the harvest; and the Buckanay company continued to reap the golden drop the rest of this week. Just now the weather proved very wet and showery, and we had very heavy rains, as will be recollected, from the 11th to the 20th; and, I well remember, I said to myself, 'Now will Mr. Rodwell find out the inconvenience of mowing wheat?' and people were calling out to me as I passed, 'what will become of your mown wheat now?' On the 21st you asked me in the morning if there would be any wheat fit to cart that day. I said I thought not, for I had examined the reaped Talavera and if that was not fit I was sure the mown was not; but I shortly after found that I was mistaken; for to my great surprise, I found the Hall company carting the mown Talavera, and to my still greater surprise found, on carefully examining it, that it was in capital condition. I examined the sheaves from one end to the other, and could find no wet or damp in them, and the bottom of the sheaf, where I expected to have found so much mischief, was quite dry. You left home on that day for two or three days, and we continued carting all that day the mown wheats, and I found to my surprise that none of the reaped Talavera wheat was fit to cart the next day; and, accordingly, occupied all the 22nd in carting the mown wheat, which was all in very good condition. On the 23rd we carted the reaped Talavera, but not in so good condition as the mown wheat, although it had stood two days longer in fine weather. The golden drop that was reaped at the same time I was obliged, now, on the 23rd, to set out singly before it was fit to cart; and after all it was not in so good condition as the mown wheat we had carted two days before.

"And now for further proofs of the superiority of the mown wheats over the reaped; I can find amongst the reaped wheats, now we are threshing them, many mouldy sheaves and sprouted kernels, but can scarcely find one in the mown wheats. There are many other proofs of the superiority of harvesting wheats with the scythe which I need not now mention, but I could say more if required.

"I am, Sir, your humble servant,

"THOMAS SCOTCHMER.

"J. Rodwell, Esq."

Hence, from the above results, it will be seen that the mown wheats were not only more secure from injury during the long-continued rains, but that they were consequently in a fit state for being safely secured from all further risk two days earlier than the reaped wheats. If this result constituted the only advantage in the use of the scythe as compared with the sickle, it would alone suffice for adopting the system of mowing and tying up in preference to reaping; but to every practical farmer it will be obvious that, with the additional quantity and value of the straw, the entire removal from the soil of all weeds and seeds (if any), and the greater facility in thus harvesting the wheat crop (the mowing being as quickly performed, and admitting, as it does, the assistance of less efficient hands than are required for reaping), and the opportunity also of gathering in your crop more effectually—these are additional benefits not to be lightly valued.

I have the honour to be, Sir,

Your obedient and faithful servant,

JOSHUA RODWELL.

Alderton, near Woodbridge, Suffolk.

March 10, 1840.

P.S.—A very interesting article on the above subject, with some practical observations, may be seen under the head of "Harvest," in the *Penny Cyclopædia*, which may be found also copied into the *Penny Magazine* for the month of August, 1839, p. 343.

THE USE OF SALT AS MANURE.

TO THE EDITOR OF THE CORNWALL GAZETTE.

St. Agnes, Aug. 5, 1840.

SIR,—In your report of the Probuss Farmers' last Monthly Meeting, several gentlemen appear to have expressed themselves in strong terms on the little utility of salt in agriculture. I would just observe that the reason of their failure is obvious; they have used it in much too large a quantity. One individual appears to have used as much as 30 bushels to an acre, whether Cornish or Imperial is not mentioned. The following extract from Parkes's *Thoughts on the Laws relating to Salt*, published in the year 1817, may be useful:—"One to six bushel: of salt to an acre of pasture land always renders such land more productive; a larger quantity will for two or three years render the land actually sterile." Common salt and the nitrate of soda act precisely in the same way; they are decomposed by the action of the atmosphere and soil, and a sufficiency of alkali is thus furnished for the supply of the plant. I have no doubt that on a relative trial of the comparative value of salt and the nitrate of soda, the latter will be excluded from our market by the lower price and equally efficient power of the former.

Your obedient Servant,

H. D.

* It is unquestionably true that, from the comparatively loose tying of mown wheats, the sheaves dry much sooner than those which are reaped and bound tight after having been grasped in the hand and laid in regular order, a greater bulk of straw is naturally obtained, and the securing the corn is expedited. This, however, can only be the case where the land is clean; otherwise, the bulk of weeds, or, where seeded, of clover, severed from the ground and gathered into the sheaves, will require more time to get in order than the reaped wheats, where the sickle strikes higher from the ground.

The expense is in favour of mowing, but I am inclined to think there is greater waste; and the rakings, from lying on the ground, being more or less trampled upon, and during a protracted harvest necessarily discoloured, would, unless kept separate, deteriorate the sample, and, as rakings, are undoubtedly of less value. —H. HANDLEY.

PARTRIDGE SHOOTING ;

RETRIEVING.

(PLATE II.)

The subject of the present embellishment is a setter acting the part of retriever, and hence we are given to suppose that the dog has fetched the bird which had been killed over him. The partridge in the mouth of the dog speaks for itself, it is the sire of the covey, the old cock, who has thus fallen a sacrifice to his paternal fondness and care of his family. There are very few sportsmen but are well aware of the extreme anxiety manifested by the old male for his family; that he, like a careful guide and pioneer, leads the way, and directs every movement; that he is for ever on the alert, watching every suspicious approach, and giving the signal accordingly; when he perceives the sportsman enter the enclosure where he and his family are feeding, or are otherwise employed, he eyes every motion, and when at length he considers his charge no longer safe in "trusting to their heels," he rises on the wing, screaming aloud the moment his pinions are in operation, thus warning the hen and his brood of the danger, and shewing them (as he thinks) the means of escape; in rising, he is conspicuous from his superior size, and in consequence frequently falls a victim to his laudable affectionate feelings. The beautiful embellishment under consideration, exhibits the sacrifice of the sire for the security of his family.

The moorcock (the red-grouse) on the approach of the sportsman runs out from the brood, and rises some yards in advance, giving the signal (by chattering) for the family to follow him; he is more anxious to take care of himself than for the safety of his charge; while the cock partridge may be said to run all risks, and devote himself for the welfare of the covey. He rises in the midst of the young birds, and thus frequently loses his life; but, being surrounded by his alarmed and fluttering family, it not unfrequently happens that several birds fall from one discharge.

Setters are almost uniformly supposed to be more giddy than pointers, and such is in general the case; because their olfactory organs are of an inferior description; if the scent be not good, they are thus rendered uncertain in approaching game, and are apt to spring it accordingly; the rising of game under such circumstances provokes them to chase, and consequently confusion and vexation must necessarily ensue. When however the setter's head has, by judicious crossing, been rendered sufficiently capacious to afford room for that expansion of the olfactory nerves (so remarkable in the Spanish pointer, and particularly in the talbot or old English bloodhound) his sense of smell must be in precise proportion; he will therefore recognise his game in a satisfactory manner to himself, and evince the requisite steadiness.

Then again a notion is entertained that the setter is able to range or beat for a longer time, and to come out more frequently than the pointer, and so he will; because pointers are not (generally speaking) sufficiently symmetrical for great speed or extraordinary powers of endurance, and particularly defective in the feet. But, let this animal be so bred that his conformation becomes calculated to impart the requisite progressive motion; let him get rid of his crooked fore legs and widely spread spongy foot, (inherited from his Spanish progenitors) and those replaced with straight limbs

and narrow hard wiry toes, and his incapacity alluded to above will entirely disappear.

From the setter being represented with the bird in his mouth, we are given to understand that he unites two characters, namely, the setter and the retriever.

To set or point birds, and bring them when killed, is too much to expect from the same dog; if excellence be the object in either attainment, he should be kept to that and that alone. When dogs are encouraged to retrieve, they are very apt to break away on the shot, setters in particular: the fall of the bird, directly in sight of the dog, is too great a temptation.

The setter will become a dog of all work; he will range the mountains for grouse, beat the enclosures for partridges, thread the thickets and the brakes in search of woodcocks; pointers will answer the two first purposes equally well, much better indeed, but they enter thickets reluctantly; because their coat is not sufficient protection, like that of the setter, against the operations of briars and thorns.

ON EATING WINTER TARES ON THE GROUND BY SHEEP.

SIR,—In reply to "A Northern's" enquiries relative to the feeding of tares with sheep, I beg to acquaint him, through the medium of your magazine, with the system I have adopted, and that very successfully, for many years past.

I have endeavoured so to arrange my crops that the same may, as near as possible, come under the four-course system, which I consider far the best.

My flock of sheep being large, I require considerable time in the months of March and April when my turnip crop is drawing to a close, and my grass land already supplied with my breeding stock; to provide for this emergency, I invariably sow my oat grattan, or stubble, with rye and tares. The rye is sown as early as possible after the field is cleared, and about the first week in September another part is sown with tares as a first sowing, and the remainder in the course of a month, as time permits.

The rye is ready to be commenced with in the latter end of March. When the whole is consumed, which is generally about the first week in May, the tares are ready for the fold.

I invariably allow my stock *plenty*, with the addition of oil cake, commencing at the rate of half a pound per head, and increasing it by degrees to 1½ lb. daily. By this system 10 acres of tares will provide ample keep for 250 sheep for a month.

The broadshare closely follows the fold, and the subsequent ploughings prepare the land for the turnip crop, which is put in as fast as the land is ready, *always in drills*.

"A Northern" will find if he pursues this plan that his sheep may be disposed of off the tares, to his own as well as the butcher's satisfaction.

I am fearful I have prolonged my remarks more than is necessary, but, if I have been the means of affording "Northern" the least information it will give me pleasure.

I am, Mr. Editor, yours, very respectfully,

A SUBSCRIBER.

Aug. 17,

AGRICULTURE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Agriculture being the principal prop of existence, the most pleasing and interesting of all the arts and sciences, the study of it ought to be pursued with a zealous, fervent desire to do it justice.

The farmer occupies one of the most honourable, praiseworthy, and noble stations under the canopy of heaven. Some may pretend to dispute this assertion, and contend that he is inferior to the physician, lawyer, and merchant; but it is nevertheless supported by good sound sense, consequently deserves to be universally acknowledged and approved.

The giddy fair, enamoured with a white hand and costly attire, scorn the practical farmer's soiled business suit; in their weakness, they imagine he cannot possibly be deemed a gentleman; by such vain notions they lead men to adopt some profession on account of the *supposed* superiority; narrow must that mind be, that can harbour such an opinion, and thoughtless the tongue that asserts it.

Far be it from me to include all women in this censure, I honour the fair sex, and heartily bear testimony to their worth; neither do I intend to charge England with folly in this respect. America contains more professional men, (as they are called) than she can support.

I am happy to find her Majesty setting a good example, by patronising the Royal Agricultural Society. In this her good sense is clearly seen; we are by it assured, that her mind is well stored, and adapted to her high station; by such conduct, she secures to herself, the affection and ready protection of her best subjects; the farmer should be upheld, and (in a great degree) be considered a nation's support. Surely he that can shine at the plough, and in other acts of husbandry, has it in his power to acquire solid information, may possess refinement of manner and a mind sufficiently cultivated to be freely admitted to good society, and is a gentleman to all intents and purposes! he would be valued and respected by all persons of judgment; it would be no degradation in their estimation, were his hand hardened by toil, and his countenance bronzed by the sun; these appearances would speak his praise, by showing that he neglected not the duties of his station. Is not such a man happy and contented? He cares not for domineering wealth, proud pedigree, or idle fashions; he steadily and actively pursues his manly occupation, never losing sight of judgment, *good breeding*, and moderation, feeling assured that such a line of conduct must sustain him, and ultimately procure approbation and exaltation; who would seek ought beyond this? Will not the cultivation of the land assist in the cultivation of the mind? Will it not purify the heart, and lay a sure foundation for a final state of happiness? Will not a man thus occupied, look forward with hope and satisfaction to that period of his life when he is called upon to pay the last tribute to his mother earth? Yes, the enlightened, honest, practical farmer, will then feel that he has in some degree performed the duties allotted to him.

I came from America, and have been selecting some superior stock to adorn that extensive country (yet in her infancy); the cattle I purchase will be distributed amongst enterprising men; men who desire to see America more on an equality with England in this respect, and who will spare neither money or exertion to produce the required improvements; those then of whom I purchase, may rest assured that their stock will pass into the hands of

men quite capable of appreciating the good qualities belonging thereto.

I beg to add that the proprietors of the "Cultivator" for the improvement of the mind and soil, wish me to introduce this work to the Farmer's notice; it is considered by its present supporters (upwards of twenty thousand subscribers) one of the best periodicals in America; the most influential families in England, I think would find it worthy of perusal.

I cannot help noticing the *superior management*, experience and knowledge of Messrs. Wm. and Joseph Hewer, of Northleach, Gloucestershire, in bringing their rams to the high state they have done. I never saw sixty sheep shown together in my life, so near the standard of perfection, the average was 17l. 16s. 10d.—the highest price 83 guineas. I am happy to say I have 14 of these to take with me, and trust they will meet with the approbation of all who see them, and be received with that welcome, the merit and perseverance their breeders deserve. I close this epistle by saying, that I hope from my heart, England and America will for ever be friends. I am, dear Sir, yours, most respectfully,

W. H. SOTNAM.

*Perch Lake Farm, Jefferson County,
York State, North America.*

N.B. The Messrs. Hewers reserved one shearling that excited the admiration of all who saw him, a more complete sheep was never shown in the world; one of the first tup-breeders in the North of England, offered one hundred and fifty guineas for him.

ON DIVERS INTERESTING AGRICULTURAL SUBJECTS.

SIR.—In page 25 in the Farmer's Magazine of July 1840, Clodpole writes about Charlock, and calls it yellow boy, and growing on stiff land, he says a good dressing of chalk is the first step. Now as Charlock abounds in chalk, this is odd and strange. As to drilling and hoeing, I agree with him, but having laid out chalk on grass land up came Lopp Grass, which resulted from the chalky ground, from whence I took it, having borne sanfoin, for several years. I agree with Clodpole about under-draining, of which much has been written in the Farmer's Magazine, since 1795, and of which I accidentally became possessed, and respecting which I may hereafter write again if you think it worth inserting. Mr. Pusey, of Pusey, in Berks, is at present making some trials of ploughs, which is already in your Magazine, and well worth attending to.

I have much to say about spreading farming knowledge from the North to the South of England, which is much wanted, and I know no better mode of doing it than through your Magazine.

About 1780, the Devon farmers never boed their turnips. At that time, I being often in Devon endeavoured to persuade them to do so, but in vain; soon after our Berkshire militia were quartered there and taught them. Now it is usually done there; but it may be 40 years before they horse-hoe them as they now do in the Northern counties, and of which the late Mr. Cobbett speaks or rather wrote after his lecturing journey there in 1834 to 5, and all derived from the late Mr. Jethro Tull, who wrote in 1737.

Sub-soil draining and trenching as now practised in the Northern counties should be spread and known in the south.

Yours &c.,
Newbury in Berks, July 7th.

W. BUDD.

ON SEA WEED.

Sea-weed, or *Fucus*, ($\phi\upsilon\kappa\omicron\varsigma$, Gr. *fuka*, Heb. a purple dye used for painting, and obtained from a sea-plant; *fucare*, Lat. to dye or paint, some of the sea-weed being used for that purpose,) is much used as a manure on lands near the sea-coast where it can be obtained. The fuci constitute an extensive order of cryptogamous plants, and all of them have a thin, glutinous, coriaceous texture or substance. The species most common are.—1. *Fucus serratus*. 2. *vesiculosus*, being the two kinds mostly used in making kelp. 3. *Fucus nodosus*. 4. *Palmatus*. 5. *Siliquosus*. 6. *Digitatus*, the strong tall plant that abounds in most places on the coast, and these are usually mixed with other species, and with the “*Ulvas* and *confervas*.” Some kinds are cooked and used as food, and the “*Fucus saccharinus*” or “*Dulse*,” is eaten in a raw or dried state. This name is given by some botanists to a much larger plant than the one generally called “*Dulse*,” being of a tawney colour, with an elliptic leaf, and without any mid-rib; the ashes have given no less than 21 ingredients:

A saccharine matter.
Mucilage in considerable quantity.
Vegetable albumen.
Green colouring matter.
Oxalate of Potash.
Malate of do.
Sulphate of do.
Do. of Soda.
Do. of Magnesia.
Muriate of Potash.
Do. of Soda.
Do. of Magnesia.
Sulphite of Soda.
Carbonate of Potash.
Do. of Soda.
Hydriodate of Potash.
Silica.
Subphosphate of Lime.
Do. of Magnesia.
Oxide of iron, probably united with phosphoric acid.
Oxalate of lime.

“*Fucus digitatus*” has the same constituents but in different proportions, the quantity of “hydriodate of potash” was smaller. The colour is usually olive, stem round, leaves plain and broad, and much divided.

“*Fucus vesiculosus*” from 100-parts dried, gave:
A brownish, red, slimy matter, fresh red extract with some sulphate and muriate of soda..... 4
A peculiar acid..... 2
Resinous fat.....
Sulphate of Soda, with some common salt..... 3.13
Sulphate of lime with much Sulphate of Magnesia, and some phosphate of lime 12.87
Traces of oxides of iron and manganese.
Membranous matter or albumen of Fuci.. 78.
Silica.....

100

“*Fucus Serratus*” has abundance of mucilage, albumen, and more carbonate of Soda, than the last species. The leaf is dichotomous and serrated, but has no air-bladders. “*Fucus siliquosus*” has abundance of albumen, and the same salts as the last analysis; stalk waved and coriaceous, much branched with little pods.

Marine plants abound with soda, and have been found to contain $\frac{1}{2}$ of a gelatinous substance similar to mucilage, and $\frac{1}{2}$ of its weight of water, but no ammonia. The ashes contain sea-salt, carbonate of soda, and carbonaceous matter, the gaseous matter was small, chiefly carbonic acid, gaseous oxide of carbon, and a little hydro-carbonate, and water of the boiled plant, has an empyreumatic and slightly sour taste. It is almost universally applied fresh on the land, as it is thrown on the beach by tides and storms; it requires no preparation as there is no woody fibre to be reduced, and it loses both bulk and quality, by fermentation and exposure. *Fucus* fermented to lose $\frac{1}{2}$ of its weight, afforded less than $\frac{1}{2}$ of mucilaginous matter, so that fermentation must destroy that substance. The effects as manure are very transient, which may be accounted for by the great quantity of water, or the elements of water it contains; it melts and dissolves on exposure without any heat being evolved, and it is supposed that the carbonic acid formed by the incipient fermentation when applied fresh, must be partly dissolved by the water set free in the same process, and thus become capable of absorption by the roots of plants. The effect of this manure is supposed to depend chiefly on this carbonic acid and the soluble mucilage it contains, which latter substances all sea weeds lose by fermentation. It is applied fresh with great success on stubbles before winter ploughing, and on leys to be ploughed for oats, and on wheat fallows in autumn, and also as a top-dressing on grass lands. The quality of farm-yard dung is prodigiously improved by it, and also of all earthy composts; in these cases, it is laid on the top before turning, and the heap is provided with a bottom layer of earth, to receive the oozings from the mixture. It may be used by laying it in the yards in thin layers with straw, and dung of most excellent quality has been produced by this method. Sea-weed has been laid fresh in drills for potatoes with much success, and without imparting any watery quality to the roots; but in other instances, that practice has been abandoned from reasons deduced from that very circumstance. During the seasons of sea-weed being cast on the sea-shore, the farmers prepare heaps of dung and soil to receive the immediate benefit, and these heaps along with the lands to which it can be applied, afford a ready application of this invaluable article. Dung for turnips is improved by it almost beyond description; moisture is imparted, the straw is decomposed, and the whole mass is reduced to a mucilaginous state, and never fails to vindicate the expectations. The fuci have been burnt and the ashes applied as a manure, but the great diminution in bulk will not encourage that mode of preparation. Experience recommends a fresh application without any exposure or delay, on strawy or earthy heaps, or on land.

Kelp is a preparation of fuci by burning, and used in making glass, now nearly superseded by the use of Barilla, which contains four times the quantity of soda, and of a purer quality. Common kelp is a mixture of soda, sea-salt, earths, and stones, and when used as a manure it is reduced to powder, by machinery or pounding, and mixed with sand or earth. The action is that of lime and potash, and being acrid and caustic, the mixture is applied at the rate of 3 or 4 cwt. on an acre, as a top-dressing on any young crops, or spread on the surface and lightly harrowed early in the spring. It costs about 3*l.* 10*s.* per ton; but the expence of preparation and the small quantity produced, 1 cwt. from 30 of weed, will not allow any extensive use of the substance.

Aug. 20.

J. D.

ACCOUNT OF THE CHARLBURY SUBSOIL-PLOUGH.

By PHILIP PUSEY, Esq., M.P., F.R. AND G.S.

(From the Journal of the Royal Agricultural Society.)

I beg to lay, very shortly, before the Society some account of an implement which I have found to answer, so far as it has been tried, as a substitute for the subsoil-plough of Mr. Smith: and, in mentioning that gentleman's name, I need scarcely say that to the individual whose talents and perseverance establish any discovery belongs the merit, while subsequent variations, if improvements they be, flow from it almost as a matter of course. It is well known that in stirring the subsoil Mr. Smith employs first a common plough to open the furrow, and next a strong iron swing-plough, without mould-board, which is the subsoil-plough that follows the common one, and stirs the ground below the furrow to the depth of 12 or 16 inches from the surface without bringing it up. But, however valuable this discovery, whether coupled or not with thorough-draining, may on some soils prove to be, as I trust it will, still an operation so conducted requires a large employment of horse-power, and consequently an expence which may not be within the means of every farmer. The common plough which opens the furrow will of course require two horses, and sometimes three; the Deanston subsoil-plough four horses at least, and I believe oftener six, if

the full depth aimed at, 16 inches, is to be reached. Indeed, in a case which comes within my own knowledge, a practical agriculturist, in calculating the expence of entering on a cold clay farm of not six hundred acres, laid the cost of subsoiling it, apart from the draining, at the very serious amount of 1300*l.* It struck me, therefore, that possibly the discovery of Mr. Smith might be carried a little further, and be brought more within ordinary means, if we could diminish the friction necessarily incurred in passing through the unstirred subsoil, by dispensing with more parts of the common plough besides the mould-board: and I determined to try whether, by combining in one plough the two hitherto used, we might not get rid of the sole itself in the underground implement; trusting to the ordinary sole above ground for preserving the balance, and so reducing the instrument below the furrow, where the friction and resistance are of course very great, to a mere cutting or stirring tool. Mr. Hart, of Wantage, accordingly constructed for me one of his own single-wheeled ploughs, made rather stout in the beam, with a strong iron socket behind, and a simple tine fitted into it; the shape of the tine being copied from those of Biddell's scarifier, but made much thinner. This back-tine can be raised or lowered in the socket at pleasure. It is placed on the off side of the beam, in order that it may work in the middle of the fresh furrow, and so act more freely than if it were placed on the near side immediately against the unstirred land.



In order to ascertain in the first place what diminution of draught had been effected, a trial was made with Mr. Cottam's draught-gauge in a field the soil and subsoil of which are a rather strong loam. The draught of the Deanston subsoil-plough, at the depth of 16 inches, was 12 cwt.; to this must be added for the leading plough which opens the furrow 2 cwt.; making the labour of the horses 14 cwt. altogether. The draught of the new plough was between 7 and 8 cwt. With regard to the effect of the new plough, it must be remembered that the gentleman to whom we owe so much on this subject very correctly states, in his evidence given before the Agricultural Committee of 1836, that there are two distinct objects in subsoil-ploughing. The first of these is to let down the surface-water into deep drains through the clefts left in the subsoil: this advantage, I hope, may be equally attained with either plough. On the other point, the thorough stirring of the subsoil and its preparation for the support of crops, there can be no doubt that the Deanston plough is more efficient than mine; still the latter does loosen the ground considerably, and may be useful, I think, in retentive gravels, while in a really stiff clay it seems doubtful whether any subsoiling lasts very

long. But I cannot speak positively, because, except in a few trials, I have only used it as yet for getting in carrots: so far, however, it has been found to answer. The ground, the subsoil of which is strong, was worked once with this plough, to the depth of 12 inches: this was done with four horses. It was afterwards gone over twice with that excellent practical instrument Biddell's scarifier, made by Messrs. Ransome; and was then, I believe, in good tilth for the purpose, to the depth which we had reached. If, however, it were desired to stir the ground more in the first ploughing, it would be easy of course to fix a spur on the back-tine, but the advantage will be attended of course with some increase in the draught. I will not only add that, if any agriculturist who has land which he thinks may be improved by subsoil-ploughing be disposed to give this implement a trial, Messrs. Ransome, Mr. Cottam, and Mr. Hart have each a pattern of it; and that, when the back-tine is removed altogether, it is a serviceable one-wheeled plough. If it be intended to break into a very stiff or stony subsoil, this should be known to the maker, that the strength of the implement may be increased.

PHILIP PUSEY.

Pusey, May 4, 1840.

ON THE PROPOSED ESTABLISHMENT OF A YORKSHIRE AGRICULTURAL SCHOOL AND MODEL FARM.

It has long been a very favourite object cherished by many of the leading members of the Yorkshire Agricultural Society, to attempt the establishment of a system of Agricultural Education; the absence of which has been very seriously felt by various important classes of society.

It has also been conceived, that, owing to the very central situation of York in reference to the County at large, as well as to the extensive agricultural district in which our Northern Metropolis is situated, no site would be more appropriate for the formation of a Yorkshire Agricultural School than this ancient city or its immediate vicinity.

The Secretary has accordingly been requested to draw up the outline of a plan professing this design. The task is by no means an easy one. In attempting very little more than a slight glance at the immense natural advantages which promise to result from a system of agricultural education, the subject would scarcely have justice done to it under the compass of a moderate volume. The Secretary must, therefore, confine himself to reducing the proposition to certain general heads of suggestion, leaving many of the details to be supplied by such of the Members as may have already turned their attention to a scheme of this kind, and reflected upon the means by which it may be the best accomplished.

Introductory to these suggestions it may be proper to state, first, the general objects sought to be obtained in an agricultural school;—secondly, the disadvantages under which various classes of society appear to labour from want of the opportunities of attaining a scientific education of this nature. These being briefly adverted to, suggestions may, in the third place, be offered, regarding the most efficient mode in which an agricultural school can be established; and lastly, the prospectus for a scheme of this kind may be submitted to the consideration of the Society.

First:—THE GENERAL OBJECTS SOUGHT TO BE OBTAINED IN AN AGRICULTURAL SCHOOL.

These are two-fold; namely, to give the masses an opportunity of acquiring a competent knowledge of agriculture in its most improved state; and, as a consequence of this education, still farther to enlarge the too limited sphere of agricultural science. To these two objects we shall slightly advert.

The first and preliminary design is to give the masses an opportunity of acquiring a competent knowledge of agriculture in its most improved state. Under this head, little or no comment is demanded. Every department of science, agriculture excepted, avails itself of the improvements of the age, because these improvements are adverted to and expatiated upon by discerning professors. If Medicine, Chemistry, or Engineering were deprived of their legitimate teachers, it would be very easy to prognosticate the state to which these noble arts would be very soon reduced. And, if we would wish to follow out the effects which have resulted from the want of competent schools of agriculture, we need not travel very far from our own boasted country. France, Switzerland, and other states have already felt and appreciated this want, and hence the flourishing seminaries of Grignon, and of Hofwyl.

The second object sought to be attained in an agri-

cultural school is, as a consequence of education, to create a young and active host of cultivators, calculated to enlarge, on legitimate principles, the too limited sphere of this science. That the knowledge and the practice of agriculture have made great advances during these forty years, is an undoubted fact; yet it is not less true, that this advance has not kept pace with the improvements which have been effected during the same period in every other leading department of national industry.

Second:—ENUMERATION OF THE VARIOUS CLASSES OF SOCIETY WHO LABOUR UNDER THE WANT OF MEANS AFFORDED BY AN AGRICULTURAL SCHOOL.

These classes may be reduced to the following: (1.) The smaller farmers; (2.) The more wealthy cultivators of the soil; (3.) Agricultural adventurers to the colonies; (4.) Capitalists intent upon introducing agricultural improvements at home; (5.) Those who are entrusted with the management of large estates, as stewards, bailiffs, factors, &c.; and lastly, (6.) Landed proprietors themselves. The disadvantages under which these classes labour, from the deficiency of a school of agriculture, we shall consider in their order:—

(1.) **OF THE SMALL FARMERS.**—Farmers are an isolated class; they are (to use a common phrase) “a home-keeping body;”—they possess neither the means of obtaining, nor the power of communicating the knowledge, which is afforded to those who live and work more in masses. The education of the son of the smaller farmer is usually confined to that which can be given by the village schoolmaster: while his means of acquiring a knowledge of agriculture is restricted to the practice of his father, or to that of his immediate neighbourhood.

(2.) **OF THE MORE WEALTHY CULTIVATORS OF THE SOIL.**—If we ascend to a more wealthy class, a “boarding school” affords the means of a more liberal education. It has the good effect of enlarging the views and of giving a taste for reading, which is utterly unknown among those below this rank of agricultural society. But if it be intended that a youth of this class should pass his life in the country as a farmer, it will be found that common schools have no connexion whatever with agriculture. Though agriculture be a science, it is not made a branch of study; no lectures are given upon agriculture, upon chemistry, botany, geology, mechanics, or the veterinary science. Yet some knowledge on all these subjects is absolutely necessary to enable an extensive farmer to cultivate his land to the full advantage. The prosecution of these studies in after life, when an individual is chained down to the practical working of a farm for a livelihood, becomes almost impossible.

(3.) **OF AGRICULTURAL ADVENTURERS TO THE COLONIES.**—The vast increase of our population, considered in reference to the extent of our colonies, renders it necessary that we should look for sources of profitable industry, to which capital may be applied, beyond the bounds of our sea-girt shore. The only field open to speculation, upon the first occupation of every colony, is agriculture. The sons of mercantile gentlemen, and of the most extensive manufacturers, are sent out to Canada, to Australia, or to New Zealand, for the purpose of investing capital in agricultural pursuits, of making money from a business of which they know nothing; dependent solely upon the honest bailiff or foreman who has been engaged to accompany them, and who is to take the management of the concern. This man is, nineteen times out of twenty, possessed of a mere local knowledge, derived from mere local practice. It

will be conceded that, if a manufacturer from Leeds were to exchange his business with a manufacturer from Manchester, both would be greatly deficient in a profitable knowledge of their reversed occupation; and yet there is not a greater difference between the fabrication of a cotton gown and a woollen coat, than exists between the profitable cultivation of a Yorkshire Wold farm, and a farm on the banks of the river Ouse.

In short, no class of persons stands in greater need of an Agricultural School, than the young men who are daily sent forth with British capital to colonize distant lands. Their professional education, in reference to the treatment of land, as modified by all possible circumstances of climate, soil and vegetation, ought to be conducted on the most comprehensive principles.

(4.) OF CAPITALISTS ABOUT TO INTRODUCE AGRICULTURAL IMPROVEMENTS ON THEIR ESTATES AT HOME.—How many estates do we see at home where large sums of money have been unprofitably expended in vain attempts to improve upon incorrect principles? How many more do we see where signal advantages might have been obtained from a more perfect knowledge of agriculture, combined with the management of woods and waters; the latter branch being totally overlooked and neglected. There can be only one remedy for such errors,—agricultural education.

(5.) OF THOSE WHO ARE ENTRUSTED WITH THE MANAGEMENT OF ESTATES,—SUCH AS STEWARDS, BAILIFFS, FACTORS, &c.—That an agricultural education, upon the most enlarged and finished basis, is necessary for this very responsible class of society, is too obvious to need any comment whatever.

(6.) OF LANDED PROPRIETORS, OR HEIRS OF LARGE ESTATES.—This, the highest class to whom a knowledge of the best manner of managing their estates, would be of the first moment, have, at present, no efficient school of instruction to which they can resort, with the exception of the University of Edinburgh. Scotland, in its public means of instruction has limited itself to the establishment of a chair of agriculture, from which an enlightened and zealous professor has long inculcated the most important principles and improvements in reference to the highly cultivated and contiguous districts of the Lothians and other places. The example is proposed to be followed by Oxford.

Third:—SUGGESTIONS ON THE MODE OF ESTABLISHING AN AGRICULTURAL SCHOOL AND MODEL FARM.

The various classes of society who labour under the want of those means, which are afforded by an agricultural education have been enumerated. That this urgent demand should have found opportunities of utterance was naturally to be expected. Several very sensible essays, pointing out the most incalculable advantages which would arise from an agricultural school in Yorkshire, have at different intervals appeared in the county journals; and, at a meeting of the Philosophical Society of York, the subject has given rise to a luminous disquisition by a Magistrate of this City, Thomas Barstow, Esq.

In the county of Kent, a similar feeling has already been incited to active exertions. On the 10th of January, 1839, a number of influential gentlemen met at Maidstone, for the purpose of promoting a public scheme of agricultural education, on which occasion a Sub-Committee was formed for the framing and maturing the scheme of a "Kent Agricultural College;" and, on the 14th of May subsequently, their plan having been submitted to a public meeting,

held at the Town Hall at Maidstone, was considered. In order to raise subscriptions for this object, an appeal has been made to the disinterested or patriotic motives of its well-wishers, as well as to the consideration of those who were inclined to promote such an undertaking under the usual prudential stipulations of interest for money advanced. Hence both free donors and subscribers were invited to assist in the undertaking.

With regard to the last mentioned promoters, who must always form the most numerous class of the two, the following remarks are suggested:

Independently of the higher or patriotic motives which exist for attempting the foundation of a Yorkshire school of agriculture, it is to be presumed, that the outlay required for an establishment so imperiously called for by the inconveniences under which several important classes of society continue to labour, would by the fees of students, *amply remunerate its contributors*. But, as opinions may at the outset vary on this question, it would be only prudent to consider an establishment of this kind as subsisting under different degrees of greater or less pecuniary support, and of making a proportionate estimate of the good which it is enabled to effect under such varying circumstances.

These different means of instruction depending on the amount of pecuniary resources, reduce themselves to four in number.

(1.) *An Agricultural school, in its most humble form, may be conducted by a single Professor, with the aid of such practical illustrations as may be derived from contiguous farms.*

In admitting the efficiency, to a certain degree, of this mode of instruction, it is scarcely necessary to premise, that without the command of a liberal amount of funds, a scheme even of this humble kind must inevitably fail. We shall, however, suppose in the first instance that a school is called into existence under a straightened condition of pecuniary resources, requiring the greatest economy possible of its funds. In such a case, nearly the whole which could be effected would be the engagement of a professor of agriculture, for whose indemnity from the usual temporary loss of an incipient undertaking, a proportionate annual sum must be reserved.

The duties of the professor would be, first, to give very full and comprehensive courses of lectures; and, secondly, to illustrate the same by *practical observations*, without which all mere oral instructions would be comparatively inert.

Now, in order to effect the latter object, it would be advisable, in reference to this minimum degree of support, to secure for a proper remuneration, the permission of some respectable farmer, that his grounds, in the mode of their cultivation, be subjected to the more enlightened and improved views of the professor. This plan would, in the interim, form an eligible substitute for a MODEL FARM, which could not be commanded without a greater increase of funds.

In addition to this aid towards practical instruction, it may likewise be hoped, that other farmers in the neighbourhood would give a general permission, that at convenient and stated periods their grounds be inspected for the sake of instruction. Ambulatory visits might thus be conducted, during which the teacher might very profitably point out to his class the various methods of cultivation in actual practice; and it is to be presumed, that the many useful recommendations which an accomplished agriculturist is enabled to offer to the farmer in re-

turn for such an indulgence would be gratefully acknowledged.*

Such appear to be the effects which promise to result from the most moderate funds requisite for a commencement of the undertaking.

(2.) *To the Agricultural advantages stated under the foregoing head, may be added the means of general education derivable from some classical seminary previously established.*

It is evident, that under confined circumstances, none of the sciences can be taught which are considered more or less subsidiary to agriculture, and hence the pupils most likely to profit by agricultural prelections would be such as had already made some little progress in the studies of chemistry, botany, geology, mechanics, or natural history in general.

If, however, it be considered expedient that any of these accessory sciences should be actually taught, more ample funds would be needed. Fixed or occasional lecturers on the required subjects would have to be secured, and the provision would require an increased outlay. Under such an establishment, younger pupils of agriculture might enter themselves; and by means of some arrangement with the proprietors of the ably-conducted Collegiate School of York, it would be possible to devise a plan by which the usual studies of a classical seminary, along with the instructions necessary for the future profession of the agricultural student, might be jointly going on, and lend their respective aid to complete the acquirements of the well-educated cultivator.

(3.) *Agricultural Education may be still more importantly promoted by the establishment of a MODEL FARM.*

France and other states add to these means of oral instruction, the paramount advantage of a MODEL FARM, cultivated by students themselves, under the direction of their teachers.

It is indeed but too evident, that no establishment for the promotion of an agricultural education can be pronounced fully complete without the advantage of a MODEL FARM, in order that practice may constantly go hand in hand with theory.

For this purpose alone, a highly cultivated farm would be absolutely indispensable and invaluable. But it is presumed that it would possess advantages beyond this point. It would afford to agricultural societies and to patriotic gentlemen, a means of testing important experiments with greater accuracy and with less expense than can be effected in any other manner—though they, of course, must be answerable for the expense, if, by such a deviation from a regular course of husbandry any expense should be incurred. Such a farm would afford an admirable dépôt for new and improved implements, and would be the best arena on which to test their respective merits. The same observation applies to new varieties of grain, of roots, or of seeds.†

Fourth:—PROSPECTUS FOR FORMING AN AGRICULTURAL SCHOOL AND MODEL FARM IN YORKSHIRE.

In judging of a prospectus best adapted to the resources and wants of our county, it will be necessary to recapitulate the different modes which have

suggested themselves in reference to a greater or less degree of pecuniary support.

1st. An agricultural school, in its most humble form, may be conducted by a single professor, with the aid of practical illustrations derived from visits to contiguous farms.—2nd. To these advantages may be added the general education derivable from some classical seminary previously established, with the proprietors of which a convenient arrangement might probably be made.—3rd. Agricultural education may be still more importantly advanced by the establishment of a Model Farm.

Now, there can be no question whatever, that the last plan, which is that of the inhabitants of Kent, is the most efficient one proposed. But whether in our own county, the public mind is so generally alive to the importance of an agricultural school, as to embark at once in the great outlay which such an institution must involve, may be strongly questioned.

It may, perhaps, be the more prudent step, as a preliminary attempt, to secure the services of an able professor of agriculture, and, for the purpose of general education, to make some convenient arrangement with the proprietors of the York Collegiate School. A remaining great object would be to raise funds sufficient to establish a MODEL FARM. When this last desideratum shall be accomplished, it is anticipated that the agricultural school proposed to be established in York will in most respects be commensurate with the wants of the community.

In correspondence with these views, the following prospectus is respectfully submitted, but with this understanding—that if the funds should, in the first instance, fall short of the means of providing a Model Farm, a less complete system, like that which has been pointed out, be attempted. A school of agriculture, although imperfect, is surely to be preferred to the absence of any seminary whatever for instruction. If the system adopted possess a capability of future extension, or be an expansible one, it will, with little effort, adjust itself in proportion to the additional means which are afforded to it for support. The urgent wants of an increasing population will achieve the rest. The demands of so many classes of society for a scientific and improved system of agricultural education cannot long be resisted.

These remarks must be considered as prefatory to the following outline:—

OUTLINE OF A SCHEME

FOR THE ESTABLISHMENT OF THE YORKSHIRE AGRICULTURAL SCHOOL AND MODEL FARM.

1. Capital from six to ten thousand pounds, to be raised by shares at 10*l.* each, with power to the committee to increase the number of shares.
2. The whole business to be conducted under the management of a committee of twenty-one proprietors, to be elected by the shareholders: seven of the committee to retire annually.
3. A professor of agriculture, and, if required, other assistant masters, to be engaged.
4. Committee to take a farm of varied soil, with suitable dwelling-house and offices, and of an extent not less than ——— acres, on a lease for fourteen or twenty-one years.
5. The farm establishment to consist of—the master, whose duties shall be to superintend the religious and moral conduct of the pupils living at the farm; to instruct them in reading, writing, arithmetic, and surveying; and to keep all the

* An idea of this kind was first thrown out by a very intelligent correspondent of the "Yorkshireman" newspaper. He considered the practical importance of such ambulatory visits to surrounding farms, as analogous to that which is derived in the course of a medical education from clinical lectures.

† These experiments might be published in the Annual Transactions of the Yorkshire Agricultural Society, and the articles themselves might be inspected by all its members.

accounts of this branch of the establishment.—A *matron*, to take the entire charge of the household and dairy department.—A *farm manager*, to superintend the farm under the direction of the committee, and instruct the pupils in all rural work.—A *dairy maid* and other servants in proportion to the number of pupils.—*Pupils* who wish to divide their time between manual farm labour and study, to have the privilege of attending the lectures on subjects more or less connected with agriculture at the Collegiate School in York; none to be received under thirteen years of age. Payment £— per annum, to be made half-yearly in advance. To wear a hat and jacket of the uniform of the College Farm.—Certificates to be given to such pupils as have made a satisfactory progress.

YORK CITY ESTABLISHMENT OF THE YORKSHIRE AGRICULTURAL SCHOOL.

This is to be a branch of the York Collegiate School. A very large school has been erected, within a few years, for the purpose of conducting a liberal, classical, and general education. It is conducted by masters of acknowledged high talents and great attainments. To the present numerous masters of this establishment, it is proposed to add lecturers on agriculture, geology, botany, chemistry, mechanics, and veterinary science. The young gentlemen attending this establishment, would be boarded with one of the masters, or otherwise in the city. They would be received on the customary terms. Three days a week they would be conducted in an omnibus, accompanied by the agricultural lecturer, to the farm, where they would be instructed in all the practical departments for six hours.

MODE OF CONDUCTING THE MODEL FARM.

The farm to be conducted upon the acknowledged best principles of husbandry, with a sole view to profit; but to accept all offers of experiment that might be tendered to them by the Royal or Yorkshire Agricultural Societies, on the express engagement, that if unsuccessful, the loss shall be defrayed by the society at whose suggestion the experiment was made. New or improved implements to be received upon loan; their merits or defects to be ascertained; and certificates to be given to the owners when the implements are returned. A general depot and museum to be held at the farm, under the direction of the Yorkshire Agricultural Society.

No gentleman enrolling his name as a shareholder to be subject to a call for money until 100 shares are subscribed for; a committee to be then formed and a banker and secretary appointed, but no shareholder to be called upon for more than one pound per share until 300 shares are taken, nor under any circumstances to be liable to a payment beyond the amount of his original shares.

It is particularly requested that persons desirous in any way of furthering the objects proposed in this prospectus, will send their names and addresses, and from such parties any suggestion on the subject will be most thankfully accepted.

CHARLES HOWARD,
Hon. Secretary,
Yorkshire Agricultural Society, York.

SWEDISH TURNIPS.—Last year a gentleman at Frensham, near Farnham, kept 100 sheep for three months on 10 acres of Swedish turnips; of course the turnips were of extraordinarily fine growth—many of them weighing upwards of 14lb., and the average of the field was 8lb., thus giving 34 tons per acre, or about

23lb. to each sheep per day. Four years previously this same gentleman kept 330 sheep on eight acres for 12 weeks in an adjoining field, and of the same quality of soil to the one described above. This was only 30 rods for 100 sheep per week; by measurement this statement would make eight bushels per rod, at 60lb. per bushel. Of the nature of the soil, and the superior methods pursued by this very capital turnip grower, it may be remarked, that the soil naturally is as poor a sand as any to be found on the Bagshot-heath district, being a ferruginous quartzon sand, the field abutting on Frensham Common, which is a waste of 10,000 acres, from which the iron clinker paving-stone is obtained for paving Farnham-street. The methods pursued by this gentleman are, deep ploughings, dunging over the whole surface, sowing early in June, single drill flat in every third furrow seam, by a single-handed drill; as soon as the plants appear, and the rows can be made out, the horse hoe is set to work; in the course of a week after, the hand-hoe cuts them to their proper distances in the row; if there is any failure of plants in the rows, they are made good by a transplanting; this is done by efficient men, when they are good-sized plants. Another hand hoeing takes place, and then the horse-hoe is run between them every two or three weeks as long as the horse and the hoe can get between the luxuriant leaves. This is done with one horse and a lad, who goes over about three acres per day. From 60 to 70 acres are thus cultivated every year by this gentleman, who has lately commenced marling his sandy grounds, from a pit he has lately discovered in a corner of his estate.

MALT.

A RETURN of the number of bushels of Malt on which the Duty has been charged in each Year, from 1810 to 1840, both years inclusive, up to the 5th day of April, in each Year, in England, Ireland and Scotland, separately and together; stated throughout in the imperial measure.

Years.	Number of Bushels of Malt charged with Duty.			
	ENGLAND.	IRELAND.	SCOTLAND.	TOTAL.
1810..	23,541,291	3,033,302	784,527	27,359,120
1811..	25,979,328	2,437,859	968,100	29,385,287
1812..	22,066,782	2,637,341	893,707	25,597,830
1813..	18,945,766	2,159,326	658,657	21,763,749
1814..	23,656,035	3,342,512	1,130,042	28,128,589
1815..	26,349,263	3,025,066	1,319,472	30,693,801
1816..	26,856,102	2,232,406	1,258,061	30,346,569
1817..	17,820,324	1,680,219	1,142,539	20,643,082
1818..	24,217,175	1,403,336	1,167,619	26,788,130
1819..	22,325,607	1,879,082	1,442,613	25,647,302
1820..	24,739,371	1,734,647	1,400,309	27,874,327
1821..	26,084,370	1,869,758	1,225,983	29,180,371
1822..	24,848,630	1,822,125	1,077,536	27,748,291
1823..	27,312,755	1,811,490	1,429,188	30,553,433
1824..	26,064,802	1,840,196	2,014,935	29,919,933
1825..	27,887,092	2,279,188	2,784,477	32,950,757
1826..	29,181,241	2,701,358	3,724,919	35,607,518
1827..	25,342,913	2,142,530	2,490,067	29,975,510
1828..	28,738,524	2,049,642	3,194,326	33,982,502
1829..	28,217,125	2,266,226	3,713,490	34,196,841
1830..	22,821,035	2,079,468	3,944,406	28,844,909
1831..	29,079,758	1,892,082	4,089,127	35,060,967
1832..	34,115,332	2,115,435	4,105,377	40,336,144
1833..	32,249,892	1,970,058	3,767,242	37,987,192
1834..	34,061,263	2,049,407	4,406,913	40,517,583
1835..	34,072,665	2,152,138	4,437,220	40,662,023
1836..	38,261,833	2,511,231	4,736,449	45,509,513
1837..	35,657,887	2,268,475	4,751,594	42,677,956
1838..	33,620,593	2,279,069	4,480,792	40,380,454
1839..	33,687,302	2,101,744	4,567,083	40,356,129
1840..	34,086,055	1,604,307	4,309,656	40,900,018

G. A. COTTELL, First General Accountant.
Excise Office, London, June 27, 1840.

SHEEP BREEDING.

"When a race of animals have possessed in a great degree, through several generations, the properties which it is our object to obtain, their progeny are said to be well bred, and their stock may be relied on; and it cannot be doubted that any breed may be improved in the same manner."—*Sir John Sinclair.*

When I consider that there are continually grazing on our fertile pastures thirty-two millions of sheep which, exclusive of the carcase, produce a yearly clip of wool of the value of seven millions of pounds sterling, employing 350,000 individuals, and ultimately yielding manufactures to the amount of, at least, twenty-one millions of sovereigns annually, my heart expands with English pride, and I am happy my lot was cast in such a country. But then comes the curdling enquiry of how is it that the good common sense of the British farmer, with appliances enjoyed by no other agriculturist in the world, still suffers his green hills to be disfigured with such an inappropriate illegitimate race of sheep? Unwilling as I am to cause pain to any one, or to assume superiority over brother husbandmen, yet imperative truth forces me to regret that even in the middle of the 19th century the following inconsiderate practice prevails:—A farmer rides a day's journey to a sheep letting, where he sees a number of animals of various pretensions, fetching, according to worth or fancy, from fifty shillings to nearly as many pounds. Now this motley batch of varying priced rams have all been bred in the same bungling way from the same flock, and by the same males. And the sheep that is now making twenty pounds is by the same sire as he that but climbs to fifty shillings; the higher priced one being but a chance hit of comeliness, without system in his production, or certainty of what will be his progeny. It could not have happened otherwise, for had those individual sheep been bred with any science or method at all there could not have been that degrading disparity in the produce of the same flock. But such a ram breeder has no help in him, for he also yearly goes as far off for his males, (there's a charm in great distances,) where he has picked out one, but also without character or pedigree, with nothing but present external appearances and smell of oilcake to recommend him; no one being able to predict whether his offspring will be ringstraked, speckled, and spotted—whether their faces will be black, grey, or white. At such a market the obtaining a showy sheep is all that can be expected or guaranteed—all the rest is clouds, darkness, or uncertainty, and probably the next crop of lambs may show patches of as many breeds, and as many contradictory defects, as there are counties in England. Therefore it cannot be too urgently pressed on the attention of sheep breeders that in hiring rams a first consideration should be to select from such top-masters only as have pedigree, uniformity, and character, super-added to a goodly appearance in their general flock.

To those farmers who are undecided from whence to have their next male sheep I respectfully submit, do not be satisfied with merely seeing a score or two of the firstlings of the flock penned up for display. Quietly go over the whole farm, and after allowance for variety of pasturage and shelter, see whether there is an uniformity in the flock; whether any promiscuous two or three score of them present such an identity as to render it difficult for individuals to be distinguished from each other. See that the males are masculine and

the females feminine, with an harmonious family likeness running through the whole. Then ask the proprietor how he procured even a flock—whether he changes it by introducing new and unknown males with every returning season? He will answer in the negative, and say he has for a quarter or half a century carefully bred only from such as he well knew, whose uninterrupted pedigree he can produce, and during that time his mutton had not deteriorated, nor his wool lost weight or quality—that he indulges in no auxiliaries, as cake, corn, or seed, for food, or sheds for shelter, but that they eat nothing but what is grown on the farm—that they are thereby fortified against debasing influences of every kind, and truly a desirable flock to breed from. My sheep being far short of perfection, though perhaps a stage or two in advance of some of my brother breeders, I beg to describe them. Abiding ever by what I have already said about the head—the head is short, round, and without angle or hollow—a tape passed from the throat round behind the ears shall about equal alike the girth from the throat over the eyes and forehead—a quiet but confident aquiline visage (no pig-faced lady for me)—ears woolly, short, well-back and down bent, not rabbit fashioned—the neck not straight lined from the rump, but set on at the shoulders at about a 45 upward angle, nor tapering over delicately towards the head, but thick, full, and fleshy along its whole length—blade-bones well spread, far back, and showing the chine above their upper working, which will produce a large open and heavy breast, not pitched downwards as in the greyhound, but rounded up to a frontage like the forekeel of a ship. This enables the sheep to look well in the face, and gives it a presence as if standing up hill from whatever aspect it may be viewed, that is, gradually rising from the loin to the setting of the neck, which again springs upwards, thick, full, and muscular—nor do I object to a slight hollow about the middle of the back, capacious loin, spread out hips, and well connected rumps—wide and fleshy in the twist, legs short light boned, and under the sheep, not stuck out like four props to a hay stack. I covet not a thick tallow tail, but must have a well woolled belly. Other breeders possibly have better sheep; I know what mine cost, and what they pay, and in this respect am a contented man. I had more to say, but fear I am trespassing.

PRACTICAL.

P.S.—Of course, I have been speaking of the muscular frame, not of the fatty obliteration of all form, in my flock of sheep.

THE GROWTH OF PLANTS.—A profitable application of electricity, Dr. Darwin observes, to promote the growth of plants, is not yet discovered; it is nevertheless probable that, in dry seasons, the erection of numerous metallic points on the surface of the ground, but a few feet high, might, in the night time contribute to precipitate the dew, by facilitating the passage of electricity from the air into the earth; and that an erection of such points higher in the air, by means of wires wrapped round tall reeds, or elevated on buildings, might precipitate showers from the higher parts of the atmosphere. Such points erected in gardens might promote a quicker vegetation of the plants in their vicinity, by supplying them more abundantly with the electric ether.

ON FERN.

Fern (A. S. faran, vaeren, Dut.; fearn, Sax.; fahen, Ger., to go, as the plant is very abundant, and everywhere meets the traveller; filum, Lat., quasi filatim incisae) forms the order of "Filices," in the cryptogamous class of plants, in the artificial system of arrangement. The genera of ferns are numerous; but one plant only comes under the notice of agriculture, the common brake or the "Pteris aquilina," from πτερον, Gr., a wing, is very generally diffused over uncultivated grounds and heaths, and very often found on soils of good quality. It abounds in marshy loams, in dells and ravines, and on the sides of banks and mountains, where it grows luxuriantly on sands and gravels, on clayey and mixed substrata, and very generally on white sands mixed with gravel, with a thin vegetable layer, constituting soils of the poorest quality. The roots spread horizontally and often deeply into the ground, and are difficult of extirpation—frequent mowing, ploughing, and dunging, have been recommended, and above all, the pouring urine upon them. Sheep folded closely on fern ground will banish the plants by means of the dung and urine.

Fern has a salt mucilaginous taste, and was formerly much used in medicine, and the country people yet retain it in powder to destroy worms, and reckon a bed of the green plants of it a sovereign cure for the rickets in children. The stems tied together make a very durable thatch, afford a violent heat when burned, and are used where coals or fuel is scarce, to heat ovens, and to burn limestone. The roots boiled in wash are much relished by swine, and in Normandy they are mixed in bread, and in Siberia they are brewed in ale, with one-third part of the roots to two-thirds of malt. It is very satiating, and is used in preparing kid and chamois leather.

When this plant is cut in a green state, and left to rot on the ground, it very much improves the land, and the ashes afford double the quantity of salt of any other vegetable. The ashes are often mixed with water and formed into balls, heated in the fire, and then used as an alkaline ley for scouring linen. Fern ashes yield about one-ninth of their weight in salt, principally the sulphate and sub-carbonate of potash. 1000 parts of the plant, cut in August, and thoroughly dried, afforded 36.46 of ashes, which yielded by lixiviation 4.5 of salt. One hundred parts of each vegetable being thoroughly dried, were burned by an open fire, and the ashes weighed, and then lixiviated till all their saline contents were extracted, gave as under:—

100 parts.	Ashes.	Salt.	Salt from 100 parts of ashes.
Nettle	10.67	2.5	23.4
Fern	5.	0.62	12.5
Ditto	3.64	0.42	11.6
Barley .....	..	..	33.3
Sonchus arvensis	10.5	1.96	18.6
Heath .....	..	..	11.5
Fumitory	21.9	7.9	36.
Wormwood	9.74	7.3	74.8
Sallow	2.8	0.28	10.2
Elm	2.3	0.39	16.6
Oak	1.3	0.15	11.1
Beech	0.58	0.12	21.9
Aspen	1.32	0.07	6.1
Fir	0.34	0.04	13.2

The proportions of the saline substances to the earthy in plants is smallest in woods. Fern, 4.25; red clover, 0.78; vetches, 27.5; beans and stalks, 20.; and varies in other plants from 1 to 5; in oats 1 to 8, in rye 1 to 8, in wheat 1 to 3, in turnips 1 to 3.33, in potatoes 1 to 1.3, and in parsnips 1 to 1; in flax 1 to 1.7, in hemp 1 to 8. 100 parts of fern gave 3.221 of earths.

Hence we see that succulent herbaceous plants yield a much greater proportion both of ashes and salt, than the shrubby and ligneous structures, but they were all well dried; and wood will lose only one-third or one-fifth in drying, whereas many succulent plants will lose as much as nine-tenths, which may account for the difference.

Ferns make a good litter for cattle, and are usually dried and stacked for that purpose. They remain long unchanged, and should be laid in the bottom of the yards, or in similar moist places, where they may be completely saturated. The ashes are used as a top-dressing, mixed or unmixed, with good effect. The plant should be cut before it decays, and when green, either for litter or for ashes, for plants that contain much fixed alkali are liable, when withered, to lose it by every shower that falls. Fern is best adapted for summer litter for cattle and horses in the yards; when dried, like all vegetable fibre, it is very insoluble and indestructible by spontaneous change, and has in excess the general toughness and elasticity produced by the stringy intermixture of the minute threads. These fibres differ much in plants, being very flexible or firm, hard and brittle, and diminish in wood and herbaceous plants. It consists of carbon, oxygen, hydrogen, and a little azote. The cutting of dried fern into short lengths for litter, as recommended in the case of rank straws, by a change in the common cutters, might facilitate the decomposition and future management as a manure.

J. D.

ON STALL AND HOUSE-FEEDING OF RAMS.

SIR,—Seeing the system of house and stall-feeding of rams fast creeping into practice amongst some of the first breeders in the kingdom, I would wish, and feel obliged to, some of your numerous and enlightened readers, to inform me what are the more especial and particular advantages to be obtained from such a custom.

Is the health of the animal improved by it?

Is the animal more capable of performing the duties required of him in the tupping season?

Or, is that immense load of flesh (being five stone heavier than if he were in the field in the usual way,) put on the animal to make his appearance fine to the eye and hand of the purchaser only?

Does not the system of keeping him shut up in a house or stall six months or more in the year, make him naturally indolent, less active, and more incapacitated to the duties he has to perform?

And, as he has been reared as a hot-house plant, will not his health be greatly impaired when exposed on Cotswold Hills or the wolds of Yorkshire, and the most bleak situations?

A reply to these important questions will very greatly oblige,

Sir, your obedient servant,

A CONSTANT READER.

MANURING THE SOIL AND MAKING HOTBEDS.

"Most persons imagine that manure is all that is wanted to make a garden fruitful; and thus, if the fruit-trees do not bear, and the flowers and vegetables do not thrive, manure is considered the universal panacea. Now, the fact is, that so far from this being the case, most small gardens have been manured a great deal too much; and in many, the surface soil, instead of consisting of rich friable mould, only presents a soft, black, shining substance, which is the humic acid from the manure saturated with stagnant water. No appearance is more common in the gardens of street-houses than this, from these gardens being originally ill-drained, and yet continually watered; and from their possessors loading them with manure, in the hope of rendering them fertile.

"As it is known to chemists, that it is only the humic acid, and carbonic acid gas, contained in manure, which make that substance nourishing to plants; and as these acids must be dissolved in water before the roots can take them up, it may seem strange that any solution of them in water, however strong it may be, should be injurious to vegetation. The fact is, however, that it is the great quantity of food contained in the water that renders it unwholesome. When the roots of a plant, and their little sponge-like terminations, are examined in a powerful microscope, it will be clearly seen that no thick substance can pass through them. Thus water loaded with gross coarse matter, as it is when saturated with humic acid, must be more than the poor spongioses can swallow; and yet, as they are truly sponge-like, their nature prompts them, whenever they find moisture, to attempt to take it up, without having the power of discriminating between what is good for them and what will be injurious. The spongioses thus imbibe the saturated liquid; and loaded with this improper food, the fibrous roots, like an over-gorged snake, become distended, the fine epidermis that covers them is torn asunder, their power of capillary attraction is gone, and they can neither force the food they have taken up into the main roots, nor reject the excrementitious matter sent down to them from the leaves, after the elaboration of the sap. In this state of things, from the usual circulation of the fluids being impeded, it is not surprising that the plant should turn yellow, that its flowers should not expand, that its fruit should shrivel and drop off prematurely, and that in the end it should die; as, in fact, it may be said to expire of apoplexy, brought on by indigestion.

"All soil, to be in a fit state for growing plants, should be sufficiently loose and dry to allow of water passing through it intermixed with air; as water, when in this state, is never more than slightly impregnated with the nutritious juices of the manure through which it has passed. The spongioses are thus not supplied with more food at a time than they can properly take up and digest, and a healthy circulation of the fluids is kept up through the whole plant. But what, it may be asked, is to be done with a garden, the soil of which has become black and slimy like half-rotten peat? The quickest remedy is covering it with lime, as that combines readily with the humic acid, and reduces it to a state of comparative dryness; or, if the subsoil be good, the ground may be trenched, and the surface-soil buried two spits deep; in either case, it will be necessary thoroughly to drain the garden to prevent a recurrence of the evil.

"All the different kinds of soil found on level ground, consist of two parts, which are called the surface soil and the subsoil; and as the subsoil always consists of one of the three primitive earths, so do these earths always enter, more or less, in the composition of every kind of surface-soil. The primitive earths are—silice, (which includes sand and gravel,) clay, and lime, which includes also chalk; and most subsoils consist of a solid bed or rock of one or other of these materials, probably in nearly the same state as it was left by the Deluge. The surface-soils on the contrary, are of comparatively recent date; and they have been slowly formed by the gradual crumbling of the subsoil, and its intermixture with decayed animal and vegetable matter, and with other soils which may have been accidentally washed down upon, or purposely brought to it. In fields and uncultivated places, the surface-soil is almost as hard, and as coarse in its texture, as the subsoil on which it rests; but in gardens which have been long in cultivation, the surface-soil becomes so thoroughly pulverized by frequent diggings, and so mixed with the manure and decayed vegetables which have been added to it from time to time, that it is changed into the soft, light, fine, powdery substance called garden-mould. If the subsoil be naturally porous or well drained, this mould, however rich it may be made by the addition of decayed vegetable matter or animal manure, will always continue friable; and as long as it does so, it will be fit for the growth of plants: but if no vent be allowed for the escape of the water, and it be continually enriched with manure, it will be changed in time into the black slimy substance that has been already described.

"Surface-soil is called peat-earth when it is composed of decayed vegetable matter, without any mixture of animal manure; and, as this excess of vegetable matter could neither be produced nor decayed, without abundance of stagnant moisture, this kind of earth is almost always found on a clayey subsoil, which prevents the water which falls upon it from escaping. Peat-earth has a spongy, elastic feeling when trodden upon, arising from the quantity of water that it holds, and it can only be rendered fit for cultivation by draining. In its elastic state it is what is called in Scotland a moss, and in England a peat-bog. Should the water, instead of being afforded a vent by drainage, be suffered to accumulate for many years, till it completely saturates the peat, the soil becomes what is called a morass or quagmire; and it can no longer be trodden on, as it will engulph any substance resting upon it. A still further accumulation of water will, in the course of years, cause the bog to burst its bounds, and overflow the surrounding country; as the Solway-moss did many years ago, and as bogs in Ireland have done frequently. An excess of vegetable matter on a silicious subsoil, differs from the common black-peat in retaining less water; and in being mixed with a portion of the primitive earth, which, from its loose texture, becomes easily detached from the subsoil. Peat in this state is called beath mould.

"The most productive soils are those in which several ingredients are combined in proper proportions; and if any one of the primitive earths preponderates, the soil becomes comparatively unfertile. Thus the best soil for gardening purposes is generally allowed to be a calcareous loam on a chalky subsoil; and this sort of soil is composed of nearly equal parts of lime, sand, and clay, enriched by depositions of decayed animal and vegetable matter. The next best soil is a sandy loam, composed of

clay and sand, enriched by decayed animal and vegetable substances, and resting on a gravelly or sandy subsoil. The worst soils are peat and sand. A poor sandy soil is necessarily a nearly barren one; because it will not retain either water, or the nutritious juices from manure, long enough to afford nourishment to the plants grown upon it; and it is obvious that a soil of this kind can only be rendered fertile by mixing it with clay; which would change it into a sandy loam.

"A stiff clay is unfertile from its attracting moisture, and retaining it round the roots of the plants till they become swollen and unhealthy. It also retards the decomposition of manure, and obstructs the progress of the roots, which waste their strength in the efforts they make to penetrate, or twine round its adhesive clods. Soils of this description are improved by a mixture of sand, gravel, road-grit, or any substance which tends to separate the particles of the clay, and to render it light and friable.

"Chalky soils succeed better unmixed, than any of the other kinds; but chalk being a carbonate of lime, can hardly be called a primitive soil. The chalk, however, from its whiteness, is colder than any other soil; as it does not absorb, but reflects back the rays of the sun. Rain also penetrates into it very slowly, and not to any great depth. Chalk mixed with sand forms a kind of calcareous loam admirably adapted for growing vegetables; and chalky soils are peculiarly susceptible of improvement from manure.

"*Manures.*—The kind of manure generally used in gardens are horse or cow dung, and decayed vegetable matters; the manure in both cases being suffered to lie in a heap to rot before it is spread on the ground, in order that its component parts may be decomposed by fermentation, and thus brought into a fit state to afford food to the plants. Old hot-beds or mushroom beds are thus well adapted for manuring a garden; and when fresh stable dung is employed for that purpose, it is generally thrown into a heap, and turned over several times till the fermentation has abated, before it is dug into the ground. As, however, a great quantity of carbonic acid gas is evolved, and escapes during the process of fermentation, and as it seems a great pity that so much of the nutritious properties of the manure should be lost, it is now customary to cover the dunghill with earth, into which the gases will rise during the process of fermentation, and in which they will deposit the greater part of their nutritious properties. A quantity of earth should also be laid round the dunghill, to imbibe the liquid that runs from it; and this earth, part of which must be removed and fresh added every time the dunghill is turned over, will be found very nearly as valuable for manuring the beds of a garden, as the manure itself.

"The modes of applying manure differ according to the difference of the soils. For sandy loams, thoroughly rotten dung, either from an old hot-bed, or from a dung-hill sufficiently decayed to be cut easily with the spade, or the earth that has covered a dunghill, during the process of fermentation, should be laid on the surface of the soil, and dug in. In very poor sandy soils, rotten manure, or earth from a dunghill, should be laid on the surface of the soil, and not dug in: being covered, if hot dry weather be expected, with leaves, straw, or the branches of trees cut off in pruning; or occasionally sprinkled with water. Soils of this description, and loose sands, are frequently improved in the south of France and Italy, by sowing them with seeds of the common white lupine, and then, when the plants

have come up and grown about a foot high, ploughing or digging them into the soil. The green succulent stems of the lupines, when thus buried in the soil, supply it with moisture during the process of their decay; and thus nourishment is afforded to the corn, which is immediately afterwards sown upon the soil for a crop. Clayey soils should have unfertilized manure, mixed with undecayed straw laid in the bottom of the furrows made in digging: that the process of fermentation, and the remains of the straw may operate in keeping the particles of the soil open, or, in other words, in preventing their too close adhesion. Lime (though when burnt it becomes violently caustic, and will destroy and waste all the manure applied with it), as carbonate of lime, or chalk (in which state only it can properly be called a soil), retains the manure applied to it longer than any other soil. Rotten manure may thus be dug into chalk, with the certainty that it will be preserved from further decay for a very long time, and that every shower will work a small portion of its fertilizing juices out of it, and carry them into the soil, where they will be thus presented to the plants in the best possible state for affording wholesome food.

"Peat soils may be improved by the addition of quicklime as a manure, which will absorb the superabundant moisture which they contain; or they may be mixed with sand, gravel, or clay, to give them firmness and tenacity, and then with a small quantity of animal manure. Sandy peat or heath-mould is very useful in gardens for growing heaths, rhododendrons, kalmias, or any plants with fine hair-like roots; and from the quantity of vegetable matter that it contains naturally, it does not require any manure, more than what is furnished by the decaying leaves of the plants grown in it.

"Nearly the same rules apply to decaying leaves and other substances used as manure, as to stable-dung. They may be buried in an undecayed state in clayey soil, when it is the object to separate the adhesive particles of the clay by the process of fermentation; but their component parts should be separated by fermentation before they are applied as a manure to growing plants. Vegetable mould (that is, leaves thoroughly decayed and mixed with a little rich loam) is admirably adapted for manuring the finer kinds of flowers, and plants in pots. There are many other kinds of manure used in gardens occasionally, such as the dung of pigs, rabbits, and poultry, grass mown from lawns, parings of leather, horn-shavings, bones, the sweepings of streets, the emptying of privies, cess-pools, and sewers, the clipping of hedges and pruning of trees, weeds, the refuse of vegetables, pea haulm, &c. All these should be fermented, and applied in the same manner as the common kinds of manure.

"The following is a summary of the general rules to be observed in manuring and improving soils:—Never to use animal manure and quick-lime together, as the one will destroy the other. To use lime as a manure only in very sandy or peaty soils, or in soils abounding with sulphate of iron. To remember that rotten manure is considered to give solidity; and that unfertilized manure, buried in trenching, has a tendency to lighten the soil. To dilute liquid manure from a dunghill with water, before applying it to growing plants; as otherwise, from the quantity of ammonia that it contains it will be apt to burn them. To cover and surround dunghills with earth during the process of fermentation, to absorb the nutritious gases that would otherwise escape. To remember that the manure of cows and all animals that chew the cud, is cold and suited to a

light soil; and that the manure of horses, pigs, and poultry is hot and suited to a firm soil; also that all manure, when well rotted, becomes cold in its nature, and should be treated accordingly. To remember that all mixed soils are more fertile than soils consisting only of one of the three primitive earths, viz., lime, sand, or clay; and never to forget that too much manure is quite as injurious to plants as too little.

Formation of hot-beds.—Though nearly all the kinds of manure which have been enumerated may be used occasionally for hot-beds, the only materials in common use in gardens, are stable manure, dead leaves, and tan. The first of these, which is by far the most general, consists partly of horse-dung, and partly of what gardeners call long litter, that is, straw moistened and discoloured, but not decayed.

The manure is generally in this state when it is purchased, or taken from the stable, for the purpose of making a hot-bed.

"The necessary quantity of manure is procured at the rate of one cart load, or from twelve to fifteen large wheelbarrowfuls to every light, as the gardeners call the sashes of the frames, each light being about three feet wide; and this manure is laid in a heap to ferment. The heap should then be covered with earth to receive the gases evolved during fermentation, and earth laid round it to absorb the liquid manure that may drain from it. In about a week the earth may be removed, and the manure turned over with a dung-fork, and well shaken together; this operation being repeated two or three or more times, at intervals of two or three days, till the whole mass is become of one colour, and the straws are sufficiently decomposed to be torn to pieces with the fork.

"The size of the hot-bed must depend principally on the size of the frame which is to cover it; observing that the bed must be from six inches to a foot wider than the frame every way. The manure must then be spread in layers, each layer being beaten down with the back of the fork, till the bed is about three feet and a half high. The surface of the ground on which the hot-bed is built, is generally raised about six inches above the general surface of the garden; and it is advisable to lay some earth round the bottom of the bed, nearly a foot wide, that it may receive the juices of the manure that will drain from the bed. As soon as the bed is made, the frame is put on and the sashes kept quite close, till a steam appears upon the glass, when the bed is considered in a fit state to be covered three or four inches deep with mould; observing, if the bed has settled unequally, to level the surface of the manure before covering it with earth. The seeds to be raised may either be sown in this earth or in pots to be plunged in it.

"The proper average heat for a hotbed intended to raise flower seeds, or to grow cucumbers, is 60 deg.; but melons require a heat of 65 deg. to grow in, and 75 deg. to ripen their fruit. This heat should be taken in a morning, and does not include that of the sun in the middle of the day. When the heat of the bed becomes so great as to be in danger of injuring the plants, the obvious remedy is to give air by raising the glasses; and if this be not sufficient, the general heat of the bed must be lowered by making excavations in the dung from the sides, so as to reach nearly to the middle of the bed, and filling up these excavations with cold dung which has already undergone fermentation, or with leaves, turf, or any other similar material which will receive heat but not increase it. When the heat of the bed falls down to 48 deg. or lower, it should be raised, by

applying on the outside fresh coatings of dung, grass, or leaves, which are called linings.

"When hot-beds are made of spent tanner's bark or decayed leaves, a kind of box or pit must be formed of bricks or boards, or even of layers of turf or clay, and the tan or leaves filled in so as to make a bed. Where neatness is an object, this kind of bed is preferable to any other; but a common hot-bed of stable manure may be made to look neat by thatching the outside with straw, or covering it with bast mats, pegged down to keep them close to the bed."—*Mrs. Loudon's Gardening for Ladies.*

PERSICARIA (FOR FLIES IN HORSES).—The herb or juice of the Cold Arsmart (Arsmart Persicaria or Peachwort), also called Mild or Dead Arsmart, with a leaden-coloured spot on the leaf, and not hot and biting, but rather sourish to the taste, put to a horse or other cattle's sere, "will drive away the fly in the hottest time of summer." Dr. Short, who confirms this statement of Culpeper and Salmon, says it will "drive away flies and all vermin, being strewed in the place where they are." It is called the Mild, or Cold, or Spotted Arsmart, or Persicaria, or Peachwort, because the leaves are so like the leaves of a peach tree. It was also called Plumbago, because of the "leaden coloured spot placed on the leaf," which distinguishes this the Mild or Cold from the Hot and Biting Pepperwort. It has far broader leaves than the spot. The Mild of the old Herbalists is the species called the Polygonum Persicaria by modern Botanists, who describe it as having a round reddish branching stem; leaves one after another, lance-shaped, set at the great red joints of the stalk; they have semicircular blackish marks, or as Sir James Smith calls them, "black lunato spots" on them, usually either bluish or whitish, with such like seed following. The root is long, stringy, and perishes yearly. The taste of this herb is rather sour, like sorrel, or else a little drying, or without taste. The Hot Arsmart, called also Water Pepper, and Biting Persicaria, has no spot on the middle of the leaf; it grows not so tall or high as the mild; it has many lax, interrupted drooping leaves, of the colour of peach leaves; it is very seldom or never spotted; in other particulars, it is very like the Mild, but may easily be known from it by taste, for the Hot makes the tongue smart, the other does not. Besides it has no spot on the middle of the leaf, like the other. The stem is about one foot and a half high, but this is the shorter. Both flower in June, and seed in August. The Hot Arsmart, strewed in a chamber, will soon kill or expel all the fleas in it. The old Herbalists say, "a good handful of the Hot-Biting Persicaria, put under a horse's saddle, will make him go vigorous and travel fresh and lustily again, although he were half-tired before." No doubt, for it acts like a red poker. They are found in dry ditches and watery places. The Mild chiefly about ponds and marshes. The flowers of both the Hot and Cold Arsmart are, I believe, crimson, but those of the Hot are dotted.

FRENCH SHEPHERDS.—The French shepherds induce their flocks to follow them to and from pasture, instead of driving and alarming them by dogs as we do in England. The shepherd effects this by bringing up two or three lambs by hand, which, by following him ever afterwards when called, cause the whole flock to do the same. But the shepherd's perpetual call upon these proteges of his, naturally induces the flock to move when they hear his voice; and to persons to whom such scenes of rural imagery are not devoid of interest, it is a very gratifying sight. This, too, is classical: Statius, in his "Thebaid," compares the parental care of the Grecian General, Etæocles, to a shepherd leading out his sheep from their fold; and Homer illustrates the joy which Æneas displays on viewing the discipline of his troops, by that of a shepherd, on seeing his flock in good plight as he leads them to water.

ON THE OPERATION OF BUDDING.

Budding is one of the most refined and delicate operations of the gardener; and the month of August (the early weeks of it particularly) is the season in which it is usually performed with the greatest promise of success. It is the object of this article not only to render the process intelligible in all its parts, but to elucidate the causes of the union which takes place between the stock and bud. In order to this, the organization of the latter must be considered; and we therefore refer the reader to the following brief compendium of what appears to be the received opinion of the best physiological Botanists of the present day.

A *bud* is the rudiment of a branch, no branch can be formed unless a bud, in one condition or other has existed, though from some cause it be not revealed to the eye, and frequently is never excited into growth. "A leaf bud consists of a minute conical portion of soft succulent cellular tissue, enveloped in scaly, rudimentary leaves, closely applied to each other. The centre of the bud is the seat of its vitality: the scales that cover it are the parts toward the development of which its energies are first directed."

In this opinion any one must coincide who dissects a bud while in the early progress of its swelling, and then consider that, "a leaf-bud usually originates at the axil, or angular base of a leaf, and that its cellular centre communicates with that of the woody centre of the stem. In fact, if a juicy stem be cut across below, and in the direction of a swelling bud, a trace of whitish pithy matter may be discerned, from the bud to the central pith. In making this assertion from observation, as well as from one of the authorities alluded to, I refer at present exclusively to trees or shrubs with perfect stems, wherein a layer of bark and wood, crossed by medullary rays, are annually produced; and the fact tends not only to determine one of the functions of the rays, but to show that the central pith is the fountain of nutriment to, if not the *origin* of, all buds; and that therefore, when even the pith becomes absorbed, and extinct, it may reasonably be conjectured that the development of the branches and head are nearly at an end.

A *leaf-bud*, it is further stated, has three special properties, those of growth, attraction, and propagation. In warm, damp weather under the influence of light, it has the power of increasing in size, of developing new parts, and so, of growing into a plant. It is in itself a complete body, consisting of a vital centre covered by nutritive organs or hairs. "Although it is usually called into life while attached to its parent plant, yet it is capable of growing as a separate portion, and of producing a new individual in all respects the same as that from which it was divided; hence, it is a *propagatory organ* as much as a seed."

This fact admitted, we possess a key to the operation of budding; a process which can be performed whenever the bark of the *stock* will rise freely, without tearing into fibrous threads, (through a rigid adherence to the wood beneath it), and that of the amputated bud separate with equal clearness and facility. Common roses (not the Chinese), and fruit trees, are generally budded in August, because at that period sufficient vital activity remains to effect the union of parts, yet not enough of it, owing to the declining influence of solar power, to stimulate the buds to growth.

I shall now copy nearly verbatim, the *directions* for the performance of budding given in the *Penny Cyclopædia* under that head, in vol. v. p. 532; interspersing remarks on several of the paragraphs which may render them more familiar to the young practitioner, first observing that the best stock for the reception of a bud is a clear firm shoot of the wood produced in the present spring, and which is strong and elastic, but not hard and woody. The bark should be clear, and smooth, and as was before said, ought to rise freely from the wood. Again, that as *standard roses* are greatly admired for their beauty, and apples and pears are found to succeed admirably, producing handsome trees in a very few years, when young seedling stocks with one shoot only of the spring growth, are budded, the directions will be restricted to those, though they will be suitable to every species of tree or shrub.

Suppose then a straight, dog-wood stock taken from the wood, three to five feet high, to have made three stout shoots during the summer at its summit. Let these be cut off to the length of six inches, as early as possible, and then having selected a shoot of any favourite rose whereon the buds appear fully formed and somewhat projecting, "with a very sharp knife one of such buds, and the leaf to which it is auxiliary are pared off with about half an inch of bark adhering at the upper end, and an inch and a half at the lower end. By holding the leaf firmly between the finger and thumb of the left hand, with the wounded side of of the paring uppermost, the small slip of wood which adheres to the bark may be made by a jerk to come away from the paring, leaving nothing but the cellular centre of the bud fixed to the bark."

This centre is called by gardeners, the root of the bud, and it is extremely liable to be torn away, as it adheres firmly to the medullary process which passes through the sap-wood, and joins the internal pith below it. If this occur, a hole or depression will be observed just in the centre of the bud, below the inner surface of the bark, which it will be manifest must entirely prevent the base of the bud from coming into contact with the wood of the stock. On the contrary if the bud *retain* its roots, a few lacerated fibrous processes will be seen to repose on the denuded bark, and these will produce a slight elevation rather than depression, which cannot fail to make the bud press upon the wood of the stock. Nine buds of ten will be deprived of this vital centre, if the end of the strip *below* the bud be first raised, but by raising the strip at the upper end, and, as it were coaxing it away, many perfect buds can be secured. The wood may also be carefully pared down by the knife, so as to leave only the bud and its centre.

"This done an incision is to be made transversely through the bark of the stock, and a second longitudinally, at right angles to the first, and in a direction downwards, so that the two together resemble a sort of T. The operator then with a flat ivory blade, lifts up the bark on each side of the long incision, so as to separate it from the wood, and inserts beneath it the prepared bud, which is gently pushed downwards till the bud itself is a little below the transverse line."

These directions are very correct, but to obey them conveniently the budder ought to stand over his work, and to bend down the stock till it be below his eye and hand; he should hold the prepared bud between his lips, and make the incisions one after the other in each shoot (if there be two or

three on a stock) in a clean part, not two inches above its junction with the main stem.

The *long cut* must be fully opened, and its lips kept apart by the haft, so that the tender bark of the bud may slip in without interruption or folding up, and when inserted to its proper depth, which is about one fifth of an inch above the bud, the upper part of the bark must be cut off, laying the knife along the transverse cut, which thus becomes a channel to its edge; and finally drawing up the bud till the newly cut upper edge repose securely against that of the cross cut of the T. This position and junction are important, as they expose the two barks to the intercommunication of the true sap of each.

In budding roses, the *leaf must be entirely cut away*, leaving only about half an inch of its foot-stalk by which the bud with its bark can be conveniently handled, but if the leaf remains, it is found to dry the bud by transpiration, and thus to render the operation abortive.

The bud being securely encased, "a ligature of soft wetted bass is carried round the stem so as to bind the bud firmly to the new wood on which it is placed. If the operation is well performed, the bud will thus be fixed on a new plant, in the same position as it occupied on the branch from which it was taken; the mouths of the medullary rays of its bark will unite with those of the wood of the stranger plant; it will be kept in contact with a continual supply of food oozing out of the albumen," (sapwood) on which it is placed, it will absorb that food, and soon accustom itself to its new position.

Then, when the growing season arrives, it will be stimulated by light and warmth to attract sap from the wood to which it has adhered, it will push forth new wood of its own, over that which it touches, and thus will form as intimate a union with its stock as it would have formed with its parent plant. In order to enable it to do this, it is customary to head down budded branches to within a few inches of the buds, so as to compel the sap which oozes from the stock to expend itself on the former; a few natural buds, near the inserted bud are allowed to push sufficiently to attract the sap to their neighbourhood, and are then destroyed. When the bud has pushed to the length of a few inches, it is tied to the stem so as to be secured from being broken off by accident; and finally, when it is quite secure, that small portion of the stem of the stock which had been left above the bud in the first instance, is cut away, and the branches produced by the bud become the head of the tree.

This is capital and philosophical authority, which cannot mislead, therefore I have only taken the liberty to modify a word or two occasionally in order to remove the slightest ambiguity. To corroborate the views of the writer, I will add that the theory of the function ascribed to the *medullary processes* (known by the name of silver grain) corresponds with that of the late Mr. Knight, who considered them as the channels of intercourse between the newly formed bark and wood, and the central organs of the stem. In fact, we always find wood, however old it may be, even the most consolidated heart-wood, to retain much moisture, it therefore is natural to conclude, that specific fluids are conveyed by channels, laterally, across the several layers which constitute the wood of a tree.

The first process of budding, to insure success, is that which causes compression, so as to fix the

shield of bark by means of its own moist surface, to that of the wood of the stock. The ligature of bass, which ought therefore to be tough, flat, and moist, is to be passed so firmly over the incisions below and above the bud, as to drive off the air from between the surfaces, that the bark may adhere to the albumen, as a boy's leather-sucker adheres to a wetted stone. This pressure being made by the ligature, the interflow of prepared sap and the ultimate inoculation of vessels will be duly effected.

It may be inquired why,—if the bud form new layers of wood of its own, and never borrow any of the qualities of the stock, but remain true to itself—why every future shoot from the stock should still also retain the quality of that stock, and not be influenced by the head of the tree? The reply to such an inquiry will be this—The *stock* at the time when it is budded retains a great number of latent buds, fed by the pith, some of which pass through the layers of the tree from time to time, and develop themselves externally. These being pre-organized are not changed, and therefore retain their original character, since whatever processes the bud may send down the stock it *transmits no buds*. All such developments are made upwards, for all were included in the first inserted germ, and however minute at the time they are only developments, not creations. This is very wonderful, it involves infinite minuteness, but, nevertheless, it is not in any degree less true; and to evince the correctness of the hypothesis, a person has nothing more to do than to bud a young seedling apple or pear stock, according to the tenor of the foregoing rules, and to watch the event. The bud will form the head, developing bud after bud, till at length it attains the dimensions of a full grown tree. The stock also will protrude a few shoots from its latent buds, which, if neglected at first, might contend with and subdue the shoot of the inserted bud. But if obliterated as they appear, will either vanish, as in an old rose stock, or become mere dwindling sprigs. In the mean time the stock thickens, acquires new layers, and remains the vehicle of nutriment to the head, and nothing more.

Nothing more need be added at present in the form of theory or practical direction; yet one further extract may be given from our authority which deserves much attention. A bud to be successful can only be inserted into a stock nearly related *botanically*—"Thus, roses will bud upon roses, but not upon currants, as is vulgarly supposed. Apples will bud upon pears or thorns; pears upon medleys and quinces; and apricots upon plums—because all these species are closely related; but an apple will not bud upon a plum or peach, because, although they are allied to a certain degree, yet their consanguinity is not sufficiently strong."

CHICORY.

SIR,—I shall feel obliged if any of your readers will inform me of the nature of the grass chicory: whether it is useful for soiling cattle, the method of cultivation required, and where seed may be procured?

I remain, Sir, your obedient servant,

A GLOUCESTERSHIRE FARMER.

May 18th.

ON A SIMPLE LIQUID MANURE CART.

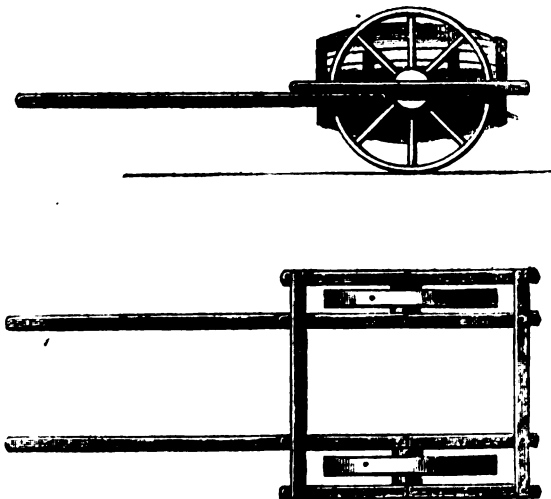
By H. WOOD, Esq., of BRAMDEAN HOUSE, HAMPSHIRE.

(From the Journal of the Royal Agricultural Society.)

The agriculturist on the Continent contrives that the drainings of his kitchen and out-offices should empty themselves into the dung-heap, from which the surplus should be discharged and removed by a simple water-cart to his meadow or garden. The stables and cow-houses or sheds have small wells to receive the urine drained from the cattle, and the grass in summer being cut for them, the ground after each cutting is watered with the collected urine, diluted with a proper quantity of water, according to the dryness of the season. I have adopted this system in my own farm, and the stalls of my stable are sloped to iron gratings in their centres, which cover a well of a foot square, communicating with a drain constructed with the common circular pot used for draining land, and running the whole length of the stable, with a fall of about half an inch to a foot. At the end of this drain, outside the stable, I have constructed a masonry-vat to receive the urine drained from the stable, and my servant, after cleaning his horses, throws down two or three pails of water over that grating which is furthest removed from the vat,

the drain being thus washed down throughout its length, and the whole kept quite clean and free from smell. The drains of my house and scullery are above ground, and run into the dung-heap, which is thus always kept moist; and the salt and grease contained in the washings of the house are absorbed by the dung, which, without this aid in dry weather, would not be converted into manure. The advantage of this arrangement is, that nothing is wasted, and there is no necessity for the various contrivances in use to destroy the smell of sinks, which are such nuisances to most houses; for the pump being at the head of the house-drain, my servants are enabled to wash down the latter daily without any trouble, and in dry weather to keep the dung-heap moist. When the vat attached to the stable is filled, I have the contents removed to the cart, which is removed with the aid of a horse or two men, to the meadow. I have adopted a similar plan in my farm-yard for securing the most valuable part of the manure in winter, when the dung is unable to absorb the rain, by the construction of a vat to receive the surplus drainings.

My water-cart consists of a wine-pipe, mounted on a pair of Indian wheels without an axle, and consequently placed so low that a person is enabled to fill it with ease while standing on the ground. The following sectional elevation and plan are drawn to a scale of a quarter of an inch to the foot.



The greatest advantage of this plan is, that little iron is required in its construction, the weight of the axle-tree being also saved. In point of strength it has all the advantages of the common pulley, for the iron which supports the wheel is only one inch thick, and would support any weight which two or three horses could draw.

Bramdean House, near Alresford, June 1840.

SHEEP.—The Sydney Herald of January 13, publishes in a supplement the subjoined notice of the arrival at that place of the Kentish sheep, presented by Mr. John Palmer, of Herne Common, to the Messrs. Denne, on their departure from this country to Australia:—“A few days since, observing some sheep which displayed a very beautiful symmetry, on board the steamer Tamar, we made some inquiry, and found that they be-

longed to two gentlemen named Denne, who arrived in the colony by the ship Mellish, a few months since. These sheep are of an improved Kentish breed, and are from the celebrated flocks of Mr. John Palmer, of Herne, near Canterbury. Great trouble has been expended upon this breed, which has been brought to such perfection that the fleeces weigh upwards of six pounds, and a six months' fleece weighed four pounds and a half. Notwithstanding the great weight of the fleece, the staple is uncommonly fine and strong, so much so that for some years past the whole of the wool has been purchased for the French manufacturers, at prices varying from 2s. to 2s. 3d. per lb. The wool was used by the French for their merino and cashmere fabrics, and it is only a few months since that the Norwich manufacturers were enabled to discover where the French obtained the material for these articles, and it is expected that now that they have discovered it, there will be competition between the Norwich and French ma-

nufacturers, and that the price of wool will increase. Messrs. Denne, who were farmers and graziers to a very considerable extent in Kent, have imported these sheep with a view of crossing them with the Merino and Saxon breeds in this colony, and so highly are they esteemed by competent judges, that ten and twelve guineas have been offered for rams of the first cross with Merino ewes. Lord Western, the celebrated breeder of Merino sheep, has, we are informed, lately turned his attention to this improved breed of sheep, and is now crossing them with Merinos, with the view to the production of a long and strong wool. The sheep, when we saw them, were being conveyed to New England, where Messrs. Denne have purchased several thousand sheep, together with a right of station. We congratulate the inhabitants of that district upon having received such a valuable addition to their number, as gentlemen of the knowledge of sheep, that Messrs. Denne must be.

ON THE PLOUGH, IN ANSWER TO MR. SMART.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir, — In your journal of the 29th of June, appears an essay on the power and construction of ploughs by one William Smart, of Rainham, Kent, a farmer; and the conclusion at which Mr. Smart arrives after a long A. B. C. and D. theorem, after kindly informing Mr. Pusey that not one of the nine ploughs, employed in his late experiment, is formed upon a true mechanical principle, and amongst other things, that the number of horses required to work a plough, is a mere matter of indifference—the conclusion I say, at which Mr. Smart arrives is, that his own dear four-horsed, two-manned, turn-wrist plough, is far superior to any other yet invented, it being, in his opinion, constructed on truer mechanical principles.

Now Sir, I am but a plain farmer, and unwilling to follow your learned correspondent when he talks of curvatures of lines, angles of inclination, and so forth. Considering as I do, that if an agricultural implement is invented, be it plough, be it roll, harrow, drill, or any thing else, and it is proved to do its work at a cheaper rate, and at the same time, quite as effectively as the more clumsy instrument it is intended to succeed, it is a matter of perfect indifference, upon what principle it is constructed, whether, with regard to the plough, the angle of inclination is $14\frac{1}{2}$ degrees, or 19 degrees. Let me not however be supposed to admit, that either the two-horse swing, or wheel-plough, is formed upon any but true mechanical principles. But Sir, I think it would be more useful, that the respective merits of the two ploughs should be proved in practice, than discussed in theory.

Mr. Smart, after proceeding at some length to prove the superiority of his plough as a work of art, as being constructed on truer mechanical principles, raises another objection to the fixed wrist-ploughs.

"Should it prove," says Mr. Smart, "that the form of the said instrument is less objectionable than is now supposed, yet the wrist or mould boards being fixed are calculated to limit the usefulness thereof; a plough with sliding wrists, removable at pleasure being preferable. I am willing to admit, under certain circumstances, this objection to be good. Where the country is hilly, and side banks have to be ploughed, the land must necessarily be turned all one way which cannot well be done with a fixed wrist; but a plough has within these few years been made similar in every respect to the common Suff-

folk and Norfolk ploughs, except that it has shifting wrists or mould-boards, which are so nicely arranged that they can be adjusted with ease at the ends of the furrows without requiring the stoppage of the horses, thus enabling the ploughman to turn his land all one way, and thus surmounting the difficulty raised by Mr. Smart in his second objection.

With regard to the ease with which a Kent turn-wrist plough may be converted into an instrument for broadsharing, and on which Mr. Smart lays so much stress, the same receipt is as applicable to the one plough as the other; the breast, or mould-board, of our Suffolk plough is easily removed, and a share of any construction may be placed in room of the one more commonly used.

But Sir, this broadsharing is an operation with which we are little acquainted in this county, except from hearing it talked of as practised in Kent; preferring as we do, to destroy weeds in their infancy, to allowing them to grow and seed amongst the corn, in which latter case, the operation of broadsharing certainly becomes necessary.

I will endeavour now Sir, to meet another objection raised by Mr. Smart, to the two-horse fixed wrist-plough. Mr. S. proceeds. "The Kent, or turn-wrist plough, has several advantages over one with a fixed mould-board in laying the land level, instead of being thrown into ridges, which on dry land can be of no use."

Now Sir, if Mr. Smart insists, that laying the land in ridges when dry, is worse than useless, he will surely allow, that it must be most useful when the land is wet, and in allowing this, he must acknowledge an advantage which our fixed wrist plough has over the turn-wrist. But Sir, I do not allow that the turn-wrist can boast the advantage over the fixed wrist that Mr. Smart mentions. In the first place if your land is dry, which Mr. S. assumes, your ridges may be made any size, and secondly, the furrows between the ridges may, by harrowing, be entirely obliterated, as is the case on the farm in the occupation of Mr. Smith of Deanston, to whom agriculturists are so much indebted for the invention of the subsoil plough, &c.

Mr. Smart next alludes to the time that is lost in turning our ploughs, adducing, as an example, that in ploughing on ridges four rods wide, the time lost in turning will be one day in twenty. Now Sir, as we are comparing the merits of two ploughs, pray let us be just, if it is only for the sake of undermining a prejudice. I am willing to grant to Mr. Smart, that one day in twenty is lost in turning our ploughs at the ends of the furrows, but pray what proportion does this bear to the time lost in turning the four horse turn-wrist plough? In my note book, I find, amongst others, the following remarks made by me during a residence of three years on a farm of 700 acres of land in Kent, and upon the authority of the occupier of that land, a gentleman who has for thirty years farmed in that county. "I find here in Kent, that on a ploughman going to work for his eight hours, he has one hour allowed for turning his plough at the ends &c., so that in point of fact he ploughs but seven hours." Now Sir, one hour per day, is six hours per week, so that in turning this turn-wrist plough, one day's work all but one hour, is lost in a week, or nearly three times as much as in turning our Suffolk plough. So much for Mr. Smart's objection to our plough, on account of the time lost in turning it.

To Mr. Smart's concluding remark I most willingly agree, viz., that if a turn-wrist plough can be produced, which requires no greater power to propel it than others, and which performs its work equally well, it is equally worthy of notice, as the two horse

fixed-wrist plough. But Sir, until such a turn-wrist plough is produced, I maintain that it is an implement unworthy of notice, except for the purpose of showing its inferiority to more recent inventions; and Sir, until such a plough is produced, I assure Mr. Smart he cannot do better than adopt in the mean time, our improved iron ploughs, which are capable of ploughing up every thing but a prejudice, and which he will find upon trial, to be constructed on quite as true mechanical principles as the turn-wrist.

I am Sir, your obedient servant,

DANDY SHARWOOD.

Blairhall, July 3rd.

ON THE CULTURE OF TURNIPS.

TO THE EDITOR OF THE DUMFRIES-SHIRE AND GALLOWAY HERALD.

SIR,—In my last, I stated the mode of turnip sowing which, on clay soils, general principles led me to adopt, and which successful experience has led me to continue. On light free soils this method is less proper; as in them seed not only may be buried deeper, and lighter rolled, but it really requires a deeper bed to give the plants a sufficient hold of the ground, before thinning commence.

On heavy clay soils, few attentive farmers will grow turnips to be eat off by sheep. Yet a neighbour of mine has done this from year to year, and his succeeding crops of barley have been scarcely worth reaping. In 1836, he had the best crop of turnips I saw that season. His field next spring was poached by sheep, and his barley was the worst I ever saw; it was more fitted for the shears than for the sickle.

Barley needs a warm and free soil, as well as much sunshine to bring it to perfection; but on its nature, culture, and deterioration, I may offer a few remarks soon, if the present are taken in good part.

As adhesive soils are not naturally fitted for turnips, and are injured by sheep, turnips on them can, with advantage, be cultivated only to the extent required for home feeding; and keeping this in view, the farmer will find the additional trouble occasioned by the following plan stated in your last amply compensated by the superiority of his crop.

Indeed, with skill and attention, the cultivator of the stiffer soils may feed off cattle to a considerable extent, and avail himself of the steam navigation to Liverpool; while his neighbours, on light soils, may give themselves with equal advantage to the feeding of "turnip sheep."

The farmers in this district are a shrewd intelligent class, and rank high as turnip growers; but the rage for feeding-off with sheep has drawn not a few of them into serious losses.

The great supply of sheep pasture on the high grounds of this county, the large proportion of light soils in its low grounds, and the local convenience it affords for English sheep markets—all combine to point out Dumfries-shire as fitted by nature for sheep-feeding, to a large extent; and the little trouble which feeding-off turnips with sheep gives to the farmer, compared with the tedious labour and close attention imposed on him by stall or home-stead feeding, makes him partial to the former, even when he is crossing nature and injuring his future crops by the act.

It is a remarkable fact, that the soils fitted for "turnip sheep" are the very soils fitted also for bone manure; while the soils injured by sheep

treading in winter or spring are the soils fitted only for farm-yard dung. This fact alone might teach the farmer that he ought to take home the turnips grown on such soils, and send them back to his field in the shape of rich dung. It is well known that one cartful of dung, when turnips are very freely given, is better than two cartful where the dung is formed from straw alone. Thus nature, if allowed to act, makes full provision for her wants. I have digressed from my chief object, which was to make some remarks respecting the turnip fly.

A writer in the *Entomological Magazine*, some years ago, concluded from his experiments that the turnip fly does not come from other plants, is not bred in the soils from which the turnips grow, but arises from eggs deposited on the seeds themselves. By aid of a lens, he observed from one to five white specks on most of the seeds. These he supposed to be the nidus of eggs; and he escaped the fly entirely by steeping the seed for three hours in pretty strong brine. I have examined many seeds of the Swedish kind with a microscope, which makes them appear as large as plums, and observed many small white specks on their surface; but these I took for minute particles of dust, and suspect that, if the insect deposits her eggs at all on the seed, she buries them in its interior.

Many steeps have been in use, but none of them has been attended with even general success; and the particular successful instances recorded may be ascribed more to the soil, manure, season, and weather, than to the power of the steep in killing the animalculæ. Where any steep is beneficial, it must be chiefly by its hastening the growth of the embryo plant, it cannot be by killing the eggs of insects; for all the steeps recommended are either antiseptics (which would preserve the eggs instead of killing them), or are promoters of vegetation.

It is quite possible that the larvæ of insects may be killed by drinking a solution of an alkaline or a metallic salt. We know that white lead thus kills the *infusoria*; and the manure used for turnips may often contain impregnations fatal to the larvæ of the "fly."

But one fact seems to render the above writer's theory very questionable: If, with him, we suppose that the fly arises from eggs deposited on the seed, we must infer that the number of eggs and beetles must increase with the number of seeds sown; or rather, that the insects must at least be double the number of the seeds. Hence, if one fly eat the seed-blade of only one plant, the whole of the plants would be destroyed, however much seed was sown. But this is amply disproved by facts. Mr. Coke of Holkham, Mr. Berry, and various eminent agriculturists, have been taught, by many years' experience, that *thick* sowing is the best preservation from the fly.

Two years ago, I sowed by the hand two drills with the seed of Swedes and made my servant sow the rest of the plot with the same seed put in by the machine. He gave much less seed than I did. My two drills gave an excellent thick crop; his shewed a uniform but *thin* plant. The fly soon took almost every blade of the machine-sown drills; but its injury was not perceptible on the other two. These afforded a large supply for transplanting, while the rest of the drills had all to be sown again.

I have never found any inconvenience from the plants being too thick. The thinning process has always been easy and safe.

I am, Sir, yours truly,

G.

LETTER ON BEES.

SHOWING HOW TO TAKE THE HONEY FROM THEM, AND YET TO PRESERVE THEM.

(FROM THE SALOPIAN JOURNAL OF OCT. 30TH, 1839.)

MR. EDITOR,—I fear that most persons who keep bees have already proceeded "*to put them down*," or as it is termed in some counties, to "*take them up*"—that is, to destroy them with brimstone. Should there be any, however, who yet possess weak stocks, and who are in doubt whether, with the provision which they have, they will live through the winter, allow me to advise them to take the comb and honey from such stocks, and transfer the bees to other hives. This plan will be attended, in the first place, with an immediate gain of honey, it being an ascertained fact that two stocks of bees when put together in one hive, will not consume much above *one half* the quantity of honey which they would consume if kept separate. By keeping two stocks of bees therefore separate, if one hive will contain them both, persons are actually wasting honey. Another advantage from the plan is, that if two or three stocks of bees are put together in one hive there will be earlier and stronger swarms when the season for swarming arrives. The consequence of this I need not say will be the amassing a much larger quantity of honey in the following summer. This will be the result in a common way. If, however, the following season turn out to be a particularly good honey season, there will be so many additional thousands of bees to collect that which would have otherwise been lost if the bees were destroyed. Bees only live one year, and those remaining in a hive in the autumn are always such as were bred during the summer, and intended to do all the work of the succeeding spring; to destroy them, therefore, is a wanton and unnecessary waste of property.

Perhaps some persons may smile at the idea of taking the honey without killing the bees, and declare that it is impossible. In reply I assert that it is not only possible, but *perfectly easy*, and attended with as little—if not indeed often with less—trouble than killing them. The operation is performed in a very few minutes;* and, if done with care, scarcely a single bee need be lost. Within these two or three weeks past I have shown some cottagers how to do it, who are really delighted with the plan, seeing how perfectly practicable and easy it is. I have taken away the honey and comb from fourteen hives, and transferred the bees to other hives; and the bees thus united, are as quiet and peaceable as if they had always been together.

The plan I have adopted is the following:—at the proper season, that is in autumn, before they were fully ripe—I picked up three or four fuzzi or puff balls (a large kind of fungus or mushroom growing in the meadows), these I compressed a little and then had them thoroughly dried in an oven, after the bread had been taken out, and I kept them in a dry state till I wanted them. I had also a round box made of thick tin, (without any solder,) with a top full of holes to take off; the diameter of the box is about two inches, and its depth about an inch and a half; the top is about an inch and a half in height, ending in a point; at the bottom of

the box are three holes. The box and fuzz ball being ready I took an empty hive—as nearly as possible of the same size as that from which I intended to take the bees—turned it bottom upwards and placed it in a pail. I then cut a stick sharp at one end, and fixed the other end in the middle hole at the bottom of the tin box; having done this, I cut off a piece of the fuzz-ball, about double the size of a hen's egg, lighted it in the fire, placed it in the box, put on the lid, fixed the sharp end of the stick in the bottom of the empty hive, as it stood in the pail, and then immediately put upon the empty hive the hive from which I intended to take the bees, placing a wet cloth round the two hives (where they joined) to prevent any smoke from getting out. In about a minute the bees began to drop, just as if peas or heavy drops of rain were falling; soon after this, I tapped the top of the full hive several times to make them fall faster; in a short time the dropping ceased. I then took off the cloth, and found all the bees lying still and quiet in the bottom hive, except a few which remained sticking to the combs or in the cells. I then turned out the bees upon the table, found the Queen, and placed her in safe keeping under a glass, (supplying her afterwards with a little honey on a small piece of comb.) Having so done, I swept the bees back into the empty hive with a feather, and placed the hive again in the pail as before. I then sprinkled them freely with a thick syrup made of sugar and ale boiled a minute or two, and placed upon the empty hive containing the stupified bees the other hive with which I intended to unite them, pinning a cloth round them so close as to prevent any opening for a bee to escape. I next put them by in a place where no accident could happen to them by being thrown down, &c., and let them stand till about ten o'clock the following night, or the night after the following night, when I brought them quietly out, unpinned the cloth, and placed the top hive immediately on the spot from whence it had been before taken, and left them; this completed the operation, and it has answered in all the fourteen cases I have referred to. In three instances I have put two stocks of bees to a third, thus having in a single hive three quantities of bees.

It is better, I think, (though I do not say that it is absolutely necessary,) to take the Queen away; it avoids all risk of disagreement, and she is easily found by looking out sharply; she is longer, more taper, and has shorter wings than common bees. I generally find her by stirring the bees about with a quill, if she cannot be observed at once. If persons choose to sacrifice the few bees which remain in the combs they can, and this will shorten the operation; but there is generally time enough to take them all out before the stupified bees return to activity. It is important not to forget to sprinkle the stupified bees with the syrup of ale and sugar, as its scent attracts the bees down from the full hive; smelling that, they will soon go down and commence licking the sprinkled bees clean. They thus get intermingled, and afterwards all go quietly up to the top hive, as if they had always been one family.

If any person choose to try the plan, the puff balls will do, if dried, as I have before pointed out. If, however, none can be obtained, a substitute may be found described in *Taylor's Book-keeper's Manual*,* price 4s., published by Groombridge,

* It may be done any time during the day if the hives are only stopped up over night.

* Taylor recommends, in the absence of the fungus or blind-ball, common blotting paper, several times.

London. It is better to preserve the captured Queen as long as she will live, in case of any accident to the other; she generally lives about three or four days. When I teach a cottager or farmer the plan, I extract a promise that he will again teach it to others. The month of September is the best time of the year.

Should these observations prove the means of leading any persons interested in bees to save their own, and of teaching so useful a plan to cottagers, I shall be most happy.

ALIQUIS.

October 21st, 1839.

YORKSHIRE AGRICULTURAL SOCIETY.

The third annual meeting of this interesting Society took place at Northallerton on Wednesday, Aug. 5. In consequence of the extent and importance of the agricultural district around the town of Northallerton, a most excellent show of stock was anticipated, and the greatest interest was excited.

For some months the District Committee, with the Rev. J. Monson as the chairman, and M. M. Milburn, Esq., as the secretary, have been very indefatigable in making the necessary arrangements, and it is only due to them to state that they displayed a laudable anxiety to accommodate all parties to the utmost extent.

Earl Spencer arrived a few days previous to the exhibition, at the residence of Sir Samuel Crompton, Bart., of Woodend, and during the early part of Tuesday, a great number of gentlemen arrived at the Red Lion Inn. The various other excellent inns in the town also began to be busied with visitors, and on the road great quantities of stock were observed progressing towards Northallerton. Many of the more valuable stock were brought in caravans, and the whole town presented a gay and animated appearance.

The central committee and the district committee united on Tuesday morning, and were engaged in deliberations for a number of hours. They were attended by Charles Howard, Esq., the general secretary, and M. M. Milburn, Esq., the district secretary. The noble chairman, Earl Spencer, presided, and by his great agricultural experience rendered important services to the joint committees.

DINNER OF THE UNITED COMMITTEES.

On Tuesday afternoon a party of about 100 gentlemen sat down to dinner at the Golden Lion Hotel; the Earl Spencer was in the chair, and the Rev. J. Monson acted as vice-president. The following were among the company:—Col. Graham, W. Armitage, Esq., T. Hutton, Esq., Rev. E. Wyvill, M. Wyvill, Esq., T. D. Bland, Esq., S. Wiley, Esq., W. F. Paley, Esq., H. Vansittart, Esq.,

W. B. Wrightson, Esq., M.P., R. F. Shawe, Esq., Count De Gourcey, H. S. Thompson, Esq., Sir J. Johnstone, Bart., J. W. Childers, Esq., M.P., C. Howard, Esq., M. Milburn, Esq., C. Tancred, Esq., J. Booth, Esq., J. C. Maynard, Esq., T. S. Walker, Esq., R. M. Jaques, Esq., Leo. Severs, Esq., W. Lex, Esq., J. Douthwaite, Esq., W. Mauleverer, Esq., J. Harland, Esq., J. T. Wray, Esq., H. Glaisster, Esq., T. Bradley, Esq., T. Scott, Esq., T. Fowle, Esq., W. Fowle, Esq., J. Favell, Esq., R. Haynes, Esq., Rev. T. Monson, J. Roccliffe, Esq., A. Maynard, Esq., E. Clarke, Esq., T. Masterman, Esq., H. Hirst, Esq., H. Cholmeley, Esq., Rev. W. Lockwood, Rev. J. Higginson, W. Rutson, Esq., Rev. John Waites, Major Healey, Rev. P. Ewart, M. Stappylton, Esq., T. Charge, Esq., Sir R. Bateson, Bart., &c. &c. The dinner was served up with great style, and the repast being concluded,

The CHAIRMAN suggested that on the present occasion cheers should be dispensed with. He then proposed in succession the following toasts:—"The Queen," "Prince Albert," "The Queen Dowager and the rest of the Royal Family."

The noble CHAIRMAN said the next toast was one which he hoped he might be allowed to preface by a few observations. It is "May we have a good show to-morrow, and fine weather." With respect to a good show he felt confident that they should have a good one—the number of carriages he had seen, the number he had heard of being on the road, and the extent of the entries, satisfied him that this would be one of the most magnificent shows which had ever been seen in this country. (*Hear.*) There was one point on which he might apprehend some drawback, the disease which was known to prevail among cattle might make some persons afraid of bringing their stock. This was the only chance of the show being in any way injured. (*Hear.*) He recommended that on the present day they should speak on practical subjects; as on the morrow from the extent of the building and from other circumstances, it would be impossible to discuss such subjects. Having stated that the only apprehension which existed in his mind of any deterioration of the show was in consequence of epidemic, he might detail to them what his practical experience of this disease had been. (*Hear.*) They were aware that he had had a good deal of practical experience in the breeding and grazing of stock, having two large farms—one of which was for breeding to a considerable extent, and the other for grazing. On both these farms, he had escaped this disease. It would be absurd to say how he had done so, but he would tell them what he had done to prevent it. When he first heard of the disease, he made inquiry respecting it, and formed an opinion that it was a contagious disease, but not infectious. If the disease was communicated by breathing there would be no preventing it by separating stock; but if it was communicated by the touch then a strict quarantine might prevent it. Acting upon that opinion he put a strict quarantine in force on his farm; he brushed the gates, and kept the cattle from communicating with cattle on the roads. Being a grazier he of course had to buy stock in; and as he purchased each lot he put them under 14 days' quarantine; one of those lots was found to be afflicted with the disease, but having had them separated from his general stock, he prevented any spread of the disease. Another precaution he took was to place a lump of rock salt in every field, which it is well known cattle are fond of. With these precautions he had avoided the disease, although it had existed all round him.

P

folded, and a small portion of tobacco leaf placed between the fold; this is to be saturated in a solution of nitre, and dried before the fire. The paper, when divided into small pieces will readily light, and produce smoke abundantly. A small tea-spoonful of the nitre to a pint of water will be sufficient. There is a cheap tract called the Conservative Beekeeper, admirably adapted for distribution; it contains much valuable information of bees, and may be obtained of booksellers for 2d. A tin box as described above may be made for 4d.

(*Applause.*) This disease he had expressed his opinion was contagious but not infectious—the reason why he thought it was not infectious was, that a farmer in Northamptonshire, had the disease introduced into his farm, and that those cattle which communicated with them by the touch took the disease, whilst those which were prevented from coming into such close contact, entirely escaped. (*Applause.*) He had mentioned these circumstances, because the precautions he had taken were unattended with expense and required little trouble. Therefore he would recommend them to try these precautions; he would not say that it would ensure them, but he had avoided it, and he thought it would be well to follow the example. The Royal English Agricultural Society had taken the opinion of many scientific men as to the treatment of the disease, and had circulated papers containing those opinions. The farmers of the country generally were averse to follow these regulations; he would, however, recommend gentlemen to follow the recommendations of men of high authority rather than resort to quackery.

H. S. THOMPSON, Esq., said that he always had rock-salt in his fields, but yesterday two of his cattle broke out with the disease.

The Hon. Mr. NUGENT said that in Warwickshire this disease had broken out among his cattle, especially the one year and a-half and two year olds. He had placed them in separate pens, he then hung up a piece of rock-salt on one side and chalk on the other; which of these had been beneficial he did not know, but now these cattle were as sound as any other stock.

R. DENISON, Esq., asked whether any gentleman had had stock affected in the hoof—the disease sometimes appeared in the hoof, and sometimes in the mouth.

The CHAIRMAN said yes—some of his had been lame. They were treated according to the direction of the English Agricultural Society.

WM. F. PALEY, Esq., said he had had his cattle in a park, with no communication with any other animals since May, yet, strange to say, the disease had appeared among them.

The CHAIRMAN said he would now propose another toast—the Judges of the Cattle. It had usually been his task to thank them for the trouble they had taken, and to express his thanks for their past services. On the present occasion he would have to speak in a different tone—he hoped they would all have a great deal of trouble, in consequence of the excellent competition with the stock. (*Applause.*) They were much obliged to gentlemen who had come from a great distance to discharge a disagreeable office, one in which, however, he was sure that the committee would readily support them. He gave “The Judges of the cattle and Sheep.”

SIR JOHN JOHNSTONE said he rose to propose a toast on the present occasion, the subject of which he was convinced need only be named to meet with enthusiasm. It would be improper in him, for two reasons, to make any enlarged observations—1st, the presence of the noble individual to whom he referred; and 2nd, that no person was in the company who did not appreciate the services of the noble lord in his management and direction of their infant institution, by which the society had attained its respectable, nay, more than respectable—its gratifying position. (*Applause.*) He would give the health of their noble chairman, and, as they wished to get as much out of him as possible, he would ask what was his

opinion of the wheat crop this year? (The toast was given with three times three cheers.)

The Noble CHAIRMAN said he felt extremely obliged for the honour done him. He was sorry they had so soon broken through the rule which he had laid down, although it was very flattering that drinking his health had been the occasion of it. If any services of his had tended to the success of the society, it gave him the greatest gratification. He believed that the effect of a society like this in the great county of York would confer immense benefit on England. (*Applause.*) From his residence out of Yorkshire, and his slight connexion with it as regarded property (although his connexions with valued friends were as great as any man could desire), he felt a difficulty in accepting the office of president of the society. Being, however, satisfied, that the society would be of advantage, and having had some experience, he accepted the office; and, although he feared he had not done much service, he had rendered what little assistance he could. (*Applause.*) He had been asked what were his opinions respecting the wheat crops. He was a practical farmer to a considerable extent, but he had been engaged principally in grazing stock; it was, however, impossible for a person engaged in farming not to keep his eyes about him, and see what the crops were. He was afraid the crops were not good this year. He feared that the strong lands would fail to a great degree. In strips of England the crops might be good, but he feared they would fail in many important districts. This was mainly owing to the bad seed time. There was, he believed, a greater breadth of wheat sown than usual, but nevertheless he feared the crop would not be large. If they were blessed with fine weather from this time till the end of harvest, the evil might be remedied to a great degree. He thought it would be well if gentlemen, coming from distant parts, would communicate what their opinions were, which would be a great advantage to the meeting. (*Hear.*) There were also other topics which might be discussed with benefit: there was one subject on which this society had devoted much attention—whether it was desirable to have a model farm, and to establish a school of agriculture. If such a school could be established, he believed it would be a great advantage.

R. DENISON, Esq., said he had been travelling in the south of England, and had taken a good deal of notice of the crops between York and London. He was sorry to say that throughout the whole district, by way of Sheffield and Birmingham, he did not see one good wheat crop.

H. S. THOMPSON, Esq., said he had been in Somersetshire, where he had seen many very excellent crops.

J. W. CHILDERS, Esq., said that he had made a variety of inquiries of farmers as to the state of the crops, and their answers were—“The crops are generally bad, but ours are good.” Now as this was a general answer, he thought the general crop was not so bad as was supposed. His inquiries had extended to Hampshire, Cambridgeshire, and his own district, and he did not think the evil was so great as was supposed. He believed it was admitted that the crops in the north of Europe were very similar: and the prices of corn in France indicated that the crops of that country were good. He would mention one thing, which was very fanciful, but which had made some impression on his mind. It was that our series of bad years were ushered in by a bad year in America. Now last

year the Americans had a good season; so if their cycle of bad seasons is expired, it might be anticipated that this year England's cycle of bad seasons had terminated.

J. BAKER, Esq., of Nassau Grange, near Leeds, said as they were invited to communicate any information in their possession, he might mention that he received a letter three or four days ago from his brother, who is a considerable farmer in Norfolk—a county well known for the production of corn—in which he stated that corn was above an average crop, and that he intended to commence harvest as to-morrow, for wheat and oats. In coming from Ripon to that meeting, he had seen some splendid crops of corn, and indeed he had seen no bad crops. (*Applause.*)

W. MAULEVERER, Esq., said he was glad to find that the propriety of forming an agricultural school had engaged the attention of the committee. During his recent absence in France, he had visited the Royal Agricultural Institution, about twenty miles from Paris. This establishment was founded in 1829, by Charles X.; and its results had been a material and positive benefit with regard to agriculture. (*Applause.*) There was also an experimental farm attached to the institution; it was established in joint-stock shares, and had been the means of enabling many young men to obtain an advantageous livelihood, who would otherwise have been in obscurity and indigence. He then read some extracts from the prospectus to this institute, and observed, that if something of the same nature was attempted in shares of 10*l.*, 15*l.*, or 20*l.*, he had no doubt a sufficient sum would be speedily raised, and that the institution would be supported. He then observed, that many farmers were so ignorant as not to be able to write their own names, and it was impossible that landlords could prudently let their farms on long leases whilst farmers continued in their present ignorant state.

R. DENISON, Esq., said he agreed with the preceding speaker, as to the advantages which would result from establishing an agricultural school; but at the same time he was anxious to rescue the farmers from the stigma which had been cast upon them by Mr. Mauleverer. (*Hear.*) He believed they were a highly respectable and valuable class of men, who were generally anxious to avail themselves of all the improvements made in agriculture. This, he contended, was evinced by 1,200 farmers having joined that association, and 1,000 farmers were united with the society at Beverley.

Mr. MAULEVERER explained, that he had no wish to cast a stigma on the farmers, whom he highly respected, and who were more to be pitied than censured for want of education.

The Rev. P. EWART corroborated the general outline of Mr. Mauleverer, as to the state of the farmers.

The CHAIRMAN said he had some doubts on the advantage of an experimental farm, but he had no doubt whatever of a school of agriculture, provided the difficulties could be overcome in establishing it. With reference to an experimental farm he had a greater doubt, because it could be experimental only for that farm. His own opinion was, that a greater improvement might be effected in agriculture by the assistance of intelligent farmers than by the establishment of experimental farms. (*Hear.*) Some observations had been made on the intelligence and education of farmers: few persons possessed a greater acquaintance with farmers in various parts of England than himself, and although some were extremely ignorant, obstinate, and prejudiced, yet the majority of them were intelligent, and anxious for the improvement of agriculture. He then gave—"The Judges of the other classes of live stock."

A gentleman made some observations on draining, recommending the use of the spirit level.

The CHAIRMAN said, the next toast he had to propose he was sure would be drunk with great satisfac-

tion from his knowledge of the health which he was about to propose. He was a gentleman who had acted as the chairman of their local committee at this meeting, and had been most active, zealous and able in performing the business connected with this exhibition. He gave "The Rev. J. Monson." (*Applause.*)

The Rev. J. MONSON returned his grateful acknowledgements. So much had been said and well said on general topics, that he should content himself with stating that societies of this description were most important and beneficial in their operations.

The CHAIRMAN alluded to the importance of the Highland Society and the great improvement which it had produced in the agriculture of Scotland; he then observed that he trusted the principle on which agricultural societies were formed, to combine scientific improvement with the exhibition of stock would be beneficial. With regard to the veterinary art, with the exception of the treatment of horses, everything was in a most backward state. He was happy, however, to say, that the English Agricultural Society had allied itself to the Veterinary College in London, and secured the delivery of lectures on the treatment of cattle. He could assure them that any gentleman who had cattle afflicted with any disease which the local farriers could not comprehend, on sending up a statement of the symptoms to London, it would receive every attention. He concluded by giving—"The Highland Society."

A gentleman connected with the agriculture of Scotland, returned thanks.

The CHAIRMAN said the next toast he had to propose was connected with the agriculture of Ireland. To a certain extent Ireland was their rival, but such a rivalry he was glad to see. The Irish people he knew were anxious to improve their stock, and he hoped that next year they would have a good contest at Liverpool. He gave "The agriculture of Ireland."

Sir R. BATESON returned thanks, observing that for 13 years they had had a model farm and school in the North of Ireland, which had been attended with very beneficial results. They had now 72 pupils on the books, and between three and four hundred pupils had left the school, from all of whom they had received favourable accounts of their progress in the world. He detailed at some length the satisfactory state of the school, and in conclusion returned thanks for the interest taken in Irish affairs by the Yorkshire Society.

The CHAIRMAN then proposed the last toast of the evening, which he considered the most interesting of all, uniting as it did, the three great interests. He begged to give "Agriculture, Manufactures, and Commerce." (*Hear.*)

The Noble CHAIRMAN then retired, and was followed by the rest of the company, a little before eight o'clock.

THE EXHIBITION.

On Wednesday Northallerton presented such a bustling appearance, as was probably never before known in that town. At the various inn-yards lines of horses might be seen standing by fifties together, and the houses were crowded with guests, whilst the streets were absolutely blocked with carriages. The weather was extremely fine, which increased the attractions of the day.

The fields of exhibition were situate on the south of the Court House, and were extremely well adapted for their purpose. They contained about eight acres; the field nearest to the Court House was for the cattle, sheep, pigs, poultry, and seeds. The cattle extended round three sides; the sheep were in the centre, and the poultry and pigs were on the low-side. The horses and implements were in the field nearest to the Thirsk road, each field having a ready communication with the other. Convenient pens, &c. were erected at the sole expense and under the direction of John Hutton, Esq., of Sober Hill, to whose exertions the society is much indebted, as also to Mr. Monson, Mr. Rutson, and other most efficient members of the local committee.

Soon after seven o'clock on Tuesday the judges commenced their labours, which were of an arduous and difficult nature from the superiority of the stock exhibited, and the number of competitors in the various classes.

The following were the amounts of premiums offered:—Short-horned cattle, 245*l.*; Leicester sheep, 95*l.*; pigs, 35*l.*; horses, 145*l.*; shepherd, 5*l.*; implements, grains, &c., 55*l.*; drainage, 10*l.*; reports, 45*l.*; poultry, 10*l.*; total sum offered for prizes, Six hundred and forty-five pounds. This noble sum was ably contended for in the various classes. In short-horned cattle there was probably no exhibition ever produced in England equal to it, either for number or beauty of symmetry. This we have the authority of many excellent judges to declare was the case. The display of sheep, although not great, excited the admiration of the agriculturists, and the pigs were remarkably fine animals. The horses attracted great attention; the entire horses were very numerous, and many of them presented many good points. The brood mares and young horses were also greatly admired.

The members were admitted to the ground at nine o'clock, and at ten non-members with half-crown tickets were allowed access to the ground. From the excellent arrangements not the least confusion took place, although the roads leading to the exhibition presented one moving mass of people. At twelve a more extensive admission was made of visitors at one shilling each, and probably altogether there were 7000 people visited the exhibition. An effective body of police were stationed in the field to preserve order, but the good conduct of the populace rendered their assistance almost unnecessary. The receipts of the field, we understand, exceeded 400*l.*, and a considerable number of new members were admitted.

The following gentlemen acted as

THE JUDGES.

FOR HORSES.—Mr. Robert Smith, of Givendale; Mr. James Harrison, of Low Fields; Mr. James Dickinson, of London, horse dealer.

FOR CATTLE.—Mr. John Dawson, Grenant, Flintshire; Mr. C. Angus, Newick, Driffield; Mr. John Hunt, Thormington, Northumberland.

FOR SHEEP AND PIGS.—Mr. Robert Foster, of Southburn, near Driffield; Mr. William Torr, Jun., Riby, Lincolnshire; Mr. James Jobson, Newton.

FOR POULTRY.—Harry Wermald, Esq., of Sawley Hall, near Ripon.

FOR IMPLEMENTS.—Mr. John Young M'Vicar, Kelfield, Escrick; Mr. Robert James Wiley, Brandsby, York; Mr. Bryan Tibbett, Woodend, Thirsk.

These gentlemen devoted much careful attention to the duties of their office.

The following were the Premiums awarded:—

SHORT-HORNED CATTLE.

CLASS 1.—For the best bull of any age, 30*l.* First prize awarded to F. H. Fawkes, Esq., of Farnley Hall, for his bull, Sir Thomas Fairfax, calved in April, 1837. Second, 10*l.*, Mr. Wm. Raine, for The Colonel, calved in January, 1838.

[The bull which gained the first prize need not be retained in Yorkshire, but shall serve in any part of the United Kingdom, if required, the first thirty cows sent to him, within nine months from the day of the show, by members, at a sum not exceeding two sovereigns each. If the owner refuses to comply with these terms, he shall forfeit fifty pounds to the society.]

CLASS 2.—For the best two-year-old bull, 20*l.*; first, Mr. Wm. Raine, for The Colonel. Second, 10*l.*, Messrs. Chilton and Harrison, for Prince Albert, calved April, 1838.

CLASS 3.—For the best yearling bull, 20*l.*; first, Mr. Lax, for his Bob Shafto, calved in January, 1839. Second, 10*l.*, Mr. Lax, for the brother to the above, calved last January.

CLASS 4.—For the best bull calf, 10*l.*; first, Mr. Hutton Rowe, for his Duke of Wellington, calved last

January. Second, 5*l.*, Mr. Booth, for his Leonard, calved in January last.

CLASS 5.—For the best cow of any age, in calf or milk, 20*l.*; first, Mr. T. Bates, for his Oxford, calved in 1834. Second, 10*l.*, Mr. J. Booth, for his Yorkshire Jenny, calved March 11, 1836.

CLASS 6.—For the best three-year-old cow, in calf or milk, 15*l.*; first, Mr. J. Booth, for his Bracelet, calved February 12, 1837. Second, 5*l.*, Rev. J. Higginson, for his Daisy, calved in February, 1837.

CLASS 7.—For the best two-year-old heifer, in calf, 15*l.*; first, Rev. J. Higginson, for his Amazon, calved in October, 1837. Second, 5*l.*, Earl of Zetland, for his Virginia, calved in March, 1838.

CLASS 8.—For the best yearling heifer, 10*l.*; first, Mr. W. Raine, for his Alexandria, calved in February, 1829. Second, 5*l.*, Mr. John Booth, for his Mantallin, calved in February, 1839.

CLASS 9.—For the best heifer calf, 10*l.*; first, Mr. Wm. Raine, for his Hannah, calved in January, 1840. Second, 5*l.*, Rev. J. Higginson, for his Lily, by Box, calved January 15, 1840.

CLASS 10.—For the best fat Ox, 15*l.*; Mr. Wiley, for his ox, calved in July, 1835.

CLASS 11.—For the best fat cow or heifer, 15*l.*; Mr. J. Clarke, for his roan cow, calved in May, 1836.

LEICESTER SHEEP.

CLASS 12.—For the best shearing ram, 20*l.*; first, Mr. Garforth. Second, 10*l.*, Mr. Kendall.

CLASS 13.—For the best ram of any age, 15*l.*; first, Col. Croft; second, 7*l.*, Mr. Borton.

CLASS 14.—For the best pen of five ewes, 10*l.*; first, Mr. Allen; second, 5*l.*, Mr. Robinson.

CLASS 15.—For the best pen of five shearing wethers, 10*l.*; first, Mr. Allen. Second, 5*l.*, Mr. Foster.

CLASS 16.—For the best pen of five shearing gimmers, 10*l.*; first Mr. Allen. Second, 5*l.*, Mr. Fawcitt.

PIGS.

CLASS 17.—For the best boar, large breed, 5*l.*; first, the Duke of Leeds; second, 2*l.*, Mr. Brael.

CLASS 18.—For the best sow, large breed, in pig or milk, 5*l.*; first, Rev. J. Higginson; second, 2*l.*, Rev. C. Smith.

CLASS 19.—For the best boar, small breed, 5*l.*; first, Rev. J. Higginson; second, 2*l.*, Mr. Parrington.

CLASS 20.—For the best sow, small breed, in pig or milk, 5*l.*; first, Rev. J. Higginson; second, 2*l.*, Mr. Meek.

CLASS 21.—For the best three store pigs, from four to nine months old, 5*l.*, to Mr. Jordison.—No competition.

HORSES.

CLASS 22.—For the best stallion for hunters, 20*l.*; first, Mr. Foston, for Young President, aged; second, 10*l.*, Mr. Ferguson's Figaro. Three pounds were awarded by the Judges to Mr. Raper's horse, exhibited in this class, on account of his great merit.

CLASS 23.—For the best stallion for coach horses, 10*l.*; first, Mr. Topham's Sportsman; second, 5*l.*, Mr. Easingwood's Boroughreeve.

CLASS 24.—For the best stallion for roadsters, 10*l.*; first, Mr. Young's Greysheils; second, 5*l.*, Mr. Stubb's Rattler.

CLASS 25.—For the best stallion for agricultural purposes, 10*l.*; first, Mr. Palliser's Merryman; second, 5*l.*, Mr. Hairsine's Royal Oak.

[The stallion which gained the first premium in each class, shall serve mares in the county the following season, or the premium to be returned.]

CLASS 26.—For the best mare and foal for hunting, 5*l.*; first, Mr. Raper; second, 2*l.*, Mr. Jaques.

CLASS 27.—For the best mare and foal for coaching, 5*l.*; first, Mr. Gaunt; second, 2*l.*, Mr. Jaques.

CLASS 28.—For the best roadster mare and foal, 5*l.*; first, Mr. Hincks; second, 2*l.*, Mr. Richmond.

CLASS 29.—For the best mare and foal for draught, 5*l.*—no competition.

CLASS 30.—For the best three-year old hunting colt, 5*l.*; first, Rev. J. Higginson; second, 2*l.*, Mr. Wright.

CLASS 31.—For the best two-year old hunting colt, 5*l*.; first, Rev. J. Higginson; second, 2*l*., Mr. Robinson.

CLASS 32.—For the best three-year old coaching colt, 5*l*.; first, Mr. Wright; second, 2*l*. ditto.

CLASS 33.—For the best two-year old coaching colt, 5*l*.; first, Mr. Ingham; second, 2*l*., Mr. Manfield.

CLASS 34.—For the best three-year old hackney colt, 5*l*.; first, Mr. Cattle; only one shewn.

CLASS 35.—For the best two-year old hackney colt, 5*l*.; first, Mr. Robinson; second, 2*l*. ditto.

SWEEPSTAKES.

CATTLE.

CLASS 36.—Best yearling bull, 1*l*.—Mr. R. M. Jaques's roan bull, Clementi (calved 29th Sept., 1838).

CLASS 37.—Best bull calf, 1*l*.—Rev. J. Higginson's roan calf (calved 4th May, 1840).

CLASS 38.—Best two-year old heifer, 1*l*.—Rev. John Higginson's Amazon (winner of class 7).

CLASS 39.—Best yearling heifer, 1*l*.—Rev. John Higginson's Alexandrina (winner of class 8).

CLASS 40.—Best heifer calf, 1*l*.—Rev. John Higginson's Lily, (second in class 9).

SHEEP.

CLASS 41.—Best pen of five shearling wethers, 1*l*.—Mr. William Allen, Malton.

CLASS 42.—Best pen of five shearling gimmers, 1*l*.—Mr. William Allen, Malton.

EXTRA STOCK.

CATTLE.

John Beetham, West Harlsey, Northallerton. One Bull, two cows, and two yearling heifers.—2*l*. awarded.

Henry Carmichael, Sewerby, Thirsk. Two four-year old West Highland bullocks.—2*l*. awarded.

R. M. Jaques, St. Trinians, Richmond. Two cows and two heifers.—2*l*. awarded.

Thomas John Masterman, Little Danby, Northallerton. A half-bred Highland bullock.—2*l*. awarded.

John Charles Maynard, Harlsey Hall. From 20 to 30 cows and Heifers of different ages.—4*l*. awarded.

Lord Feversham, for an aged bull, 1*l*.

SHEEP.

John Beetham, West Harlsey, Northallerton. Two rams.—1*l*. awarded.

PIGS.

Rev. John Higginson, Thormanby, Thirsk. One sow, small breed; and one boar, small breed.—1*l*. awarded.

Chas. Howard, York, two female pigs.—1*l*. awarded.

Samuel Wiley, eleven young pigs.—1*l*. awarded.

HORSES.

Rev. John Higginson, Thormanby, Thirsk. One grey yearling coaching colt.—3*l*. awarded.

SHEPHERD.

To the shepherd, being an annual servant, who shall have lost the smallest proportionate number of ewes from those that produced lambs in 1840, the number of the flock not being less than fifty. The premium was awarded to Joseph Martin, who had only lost one out of 350.

IMPLEMENTS.

For the invention and improvement of such agricultural implements as may appear to the committee to deserve reward, were awarded the following sums:—5*l*. to Mr. Matthew Raper, for an improved corn and turnip drill; and 2*l*. to Mr. Coates, for a double harrow.

The following were also competitors.—Thomas Abbey, Dunnington, York. A portable thrashing machine with an improved straw-cutter to work with the same. An improved hand straw-cutter.

Thomas Bramley, jun., Thornton House, Northallerton. A scuffer and double mould board plough.

William Busby, Newton-le-Willows, Bedale. Some improved harrows.

John Dickinson, Hovingham, Whitwell. A winnowing machine.

Timothy Hopton, Appleton Wiske, Great Smeaton. A scuffer for Wheat, &c.

William Lister, Dalton, Richmond. A one-horse cart on an improved principle.

E. Robinson, Ripon. A new straw shaker.

Joseph Scurrah, of Crakehall. Improved iron scuffers. Iron drag harrow on an improved principle.

John Styant, of Whixley. Atkinson's patent improved thrashing machine.

The Duke of Leeds. A model of a churning apparatus, in brass, mounted on mahogany, in which the power of the lever was usefully applied to lessen the labour. Not exhibited for competition.

John Malthouse, of Ripon. Eleven row management drill. A six row management drill, for four or three rows of turnips or two ridges. Turnip drill for rough manure—three broadcast or two in ridges. A single row turnip drill. A mill for breaking oilcake. A winnowing or blasting machine.

John Chapman, of Thirsk. Single row management turnip drill. A thirteen row drill. An eleven row drill, with improved rappers, for assisting the delivery of chemical manure, linseed, &c.

ROOTS, GRAINS, AND SEEDS.

For new or improved varieties of agricultural roots, graias, and other seeds, the following prizes were awarded:—John Henderson, Castle Howard, Whitwell, a specimen of Italian rye-grass seed, 3*l*.; Robert Hotham, Kilnwick Percy, Pocklington, a specimen of Holstein barley seed, 3*l*.

For the best specimen of wheat in ear, to be accompanied with a thrashed sample of the general produce: 5*l*. to Mr. Christopher Barrowby, Baldersby, Ripon; and 3*l*. to Mr. Robert Hotham, Kilnwick Percy, Pocklington; 3*l*. was also awarded to the same gentleman for a sample of oats.

The sample of rye-grass was grown upon a cold clay soil near the centre of the county of York. The seed was originally obtained from a gentleman in Nottinghamshire, who assured the grower of this that he had proof of its being perennial (not biennial, as by some writers stated). No rye-grass that the grower has ever seen can bear any comparison with it for its luxuriance, its nutritive properties, and its early growth in the spring. In one field the grower had ewes and lambs grazing with a full bite in the last week in March; at least a month before any other artificial grasses were fit to depasture; and the grass in the field where the sample was grown would in the last week in April average in length about eleven inches, and the first week in July would average about from 3½ to 4 feet. The grower has invariably sown it, without any mixture of other seeds at the rate of 2½ bushels to the acre. The grower has this year depastured with sheep two small fields of this grass; and has never at any time had fewer than at the rate of four, and most of the season five ewes with double lambs upon the acre, and the fields have been all summer, and now are, excellent pastures.

DRAINAGE.

To the tenant in the North Riding of the county of York, who shall have drained in the most efficacious, judicious, and economical manner, the largest quantity of land in proportion to his occupation, 10*l*., awarded to Mr. John Foxton.

COMPETITORS.—Robert Abbey, Salton, Kirbymoorside; John Forster, Newton-le-Willows, Bedale; John Foxton, Haram, Helmsley.

THE GRAND DINNER.

At three o'clock the members and friends of the society sat down to dinner in the grand pavilion erected in the court-yard between the court-house and the prison. This building was pretty nearly a square, and was very neatly fitted up. The roof was of transparent oil-cloth, and completely water-

proof, which would have been very beneficial in case of rain, as the company were perfectly secured from the weather; fortunately, however, such a precaution was unnecessary. The president's and judges' tables were placed on a *dais*, fronting the court-house, and underneath was a table assigned to the reporters of the public press, of which there were about ten from the various Yorkshire newspapers. The tables for the public were nineteen in number, and ran in a direct line from south to north; each range of tables being lettered to avoid inconvenience in the company taking their seats. A gallery for the accommodation of the ladies was erected on the left, rather behind the president's table. The pavilion afforded accommodation for 1,400 persons, and the tables when set out presented a most pleasing sight. The dimensions of the building are 118 feet by 53.

The chair was taken by the Earl Spencer; who was supported on the right by Sir E. Vavasour, Bart., Hon. W. Duncombe, M.P., Hon. A. Lascelles, Baron Langen, H. Preston, Esq., Sir S. Crompton, Bart., M.P., W. R. C. Stansfield, Esq., M.P., Archdeacon Headlam, W. B. Wrightson, Esq., M.P., Rev. W. Dent, General Sir John Beresford, Bart., G. W. Wentworth, Esq., J. W. Childers, Esq., M.P.;—on the left by the Duke of Leeds, Count de Gourcey, Hon. Charles Lascelles, Hon. and Rev. T. Monson, M. Wyvill, Esq., Sir R. B. Graham, Bart., P. D. Cooke, Esq., Sir E. Dodsworth, Bart., H. Vansittart, Esq., H. S. Thompson, Esq., Sir R. L. Dundas, Bart., M.P., George Legard, Esq., W. C. Maxwell, Esq., R. Denison, Esq., &c.;—Sir J. V. B. Johnstone, Bart., acted as vice-president.

The following gentlemen were nominated as stewards, each gentleman being indicated by a white willow wand and a white rosette:—W. Armitage, Esq., J. S. Crompton, Esq., T. Lacey, Esq., R. M. Jacques, Esq., J. G. Loy, Esq., W. F. Paley, Esq., Thomas Morley, Esq., Rev. J. Higginson, J. Favell, Esq., Col. Hildyard, C. Topham, Esq., T. Bradley, Esq., J. Rob. Esq., J. Roccliffe, Esq., F. Morley, Esq., T. S. Walker, Esq., Leonard Scvers, Esq., Thos. Charge, Esq., F. Cholmeley, Esq., J. C. Maynard, Esq., John Booth, Esq., E. Squire, Esq., E. Clarke, Esq., Rev. W. Lockwood, H. Glaister, Esq., T. Masterman, Esq., J. Douthwaite, Esq., J. W. Smith, Esq., — Haynes, Esq., T. Dighton, Esq., J. S. Walton, Esq., R. Booth, Esq., T. Hut-ton, Esq., J. Carter, Esq., Rev. J. T. Monson, Rev. J. Wiley, J. Harland, Esq., J. Hutton, Esq., W. Mauleverer, Esq., W. Rutson, Esq., J. T. Wray, Esq., Rev. P. Ewart, T. Fowle, Esq., W. Fowle, Esq., W. J. Anderson, Esq., T. C. Hincks, Esq., R. Hildyard, Esq., Rev. T. Morley, R. Maynard, Esq., J. Manghan, Esq., F. Morley, Esq., Hon. T. O. Powlett, J. Rider, Esq., T. Robson, Esq., L. Topham, Esq., E. C. Topham, Esq., J. Topham, Esq., and some other gentlemen whose names we could not ascertain.

The dinner was served up by Mr. Shepherd, of the Red Lion Inn, and appeared to give the greatest satisfaction to the numerous guests who amounted to upwards of 1,200.

After the cloth had been removed, and thanks after meat returned, &c.

The CHAIRMAN said—Gentlemen, the first toast which I have the honour to propose is one which, I know, does not require any prefatory observations from me (*Applause*). I am perfectly satisfied that you will cordially join me in drinking "The health of the Queen" (*Three times Three*).

The CHAIRMAN said—Gentlemen, the next toast which I have the honour to propose to you, is one

which, since last year, has been added to the usual toasts proposed on public occasions (*Applause*). I hope and trust that we shall have to drink this toast for many years to come; I hope and trust that his conduct will continue to be such as his past conduct has been, and that we may be able to drink his health with the same degree of cordiality as on the present occasion (*Applause*). I give you "The health of Prince Albert" (*Three times Three*).

The CHAIRMAN said—Gentlemen, I did not feel it necessary to use any persuasion to induce you to drink the healths which I have already offered to your notice. I feel confident that the one which I am about to propose will receive the same cordial acquiescence which you have shown in the other toasts (*Applause*). The Queen Dowager, since she has been in this country, has evinced such beneficence, such kindness—has displayed such condescension to all who approached her, that she has attained a strong hold of the affections of the people of this country (*Applause*). I am sure, therefore, you will drink her health. With respect to the other members of the royal family, they have ever been prominent in promoting every charitable institution; and in doing all they can to alleviate distress, and benefit the people of this country. I am sure, therefore, you will cordially drink "The health of the Queen Dowager and the rest of the Royal Family" (*Three times Three*).

The CHAIRMAN said—Gentlemen, before I propose the next toast to your notice, I think it my duty in the first place, to state to you some matters which are strictly matters of business. You are aware that on the present occasion the three years, my term of service as your president, expires; and to-morrow I shall cease to hold that office. The committee have decided to recommend to the society, as our future chairman, Lord Wharcliffe. (*Cheers*.) We feel quite confident, from his personal recommendations, from everything we know of him, his rank and station, you will confirm his appointment. (*Applause*.) Another point which I would allude to is, the place of our meeting next year. It has been decided that it shall be at Hull. This is a most convenient place for the conveyance of animals, and also for those gentlemen who wish to be present—there being ready railway and water communication. Therefore I hope that Hull will afford us as good a meeting as our present and former meetings. (*Cheers*.) Having said this much on matters of business, I cannot propose the toast I have to offer to your notice without congratulating you on the success which we have had to the present time. (*Loud applause*.) I sincerely hope that Lord Wharcliffe, when he retires from the same office, at the expiration of his three years, will have had the same success which I have experienced. (*Hear, hear, and cheers*.) We have gone on from year to year improving. At the first meeting in York it might be said the novelty led to a great number of persons coming among us; at our second meeting, which was in the populous town of Leeds, it was not surprising that we should have a large meeting. But this year we have had a great meeting. Although we are purely agriculturists, and had to depend upon our brother farmers, we have had the full number to look at our show—we have have had a superior exhibition to any former occasion, and now I have the honour of addressing you at as large a meeting as in any former year, and in addressing you, I know I address men who are all interested in agriculture (*Applause*). Although, in counting noses we have not increased our numbers, in counting farmers we have increased

(*Applause*). Practically, we have had a larger and more successful meeting than we ever had before (*Applause*). That being the case, I cannot help feeling confident in the prosperity of our society (*Applause*). It is now not a new experiment; we have tried and succeeded, and I am confident we shall derive the benefits which we anticipated (*Applause*). I trust that we have set an example in this great county which will tend to the improvement of agriculture. We meet in union and good fellowship to promote the object we have at heart, and I am certain that our endeavours will confer the greatest benefits to this county, ay, not only to this county, but also to the kingdom at large. Gentlemen, I propose to you, "Success to the Yorkshire Agricultural Society." (*Three times Three.*)

The Hon. W. DUNCOMBE, M.P., on presenting himself, was received with loud and enthusiastic cheering. He said, My Lord Spencer and Gentlemen, the next toast having been allotted to me, I have now the honour of rising to bespeak your attention, and although I cannot but regret that it has not fallen into abler hands, I am, nevertheless, free to acknowledge that it is to me matter of sincere congratulation, that I should have the honour of proposing to you the toast which has been assigned to me—The health of the noble President (*Loud cheers*). And in proposing that toast to you it must be obvious to every one, that I am proposing the health of a nobleman, who for a long series of years, has been the zealous friend and staunch supporter of agriculture and of agricultural improvements (*Loud cheers*). The society which is celebrating its anniversary at Northallerton this day is indebted in the highest degree, to the noble earl for the favours he has bestowed upon it by accepting the office of president, and the society has thus had the advantage of the noble earl's experience and knowledge of agricultural subjects, which I have no hesitation in saying, has considerably enhanced their value and importance (*Cheers*). If I might be allowed to express my own opinions, I should say that the pursuit of agriculture, the cultivation of the land, and the improvement of the fertility of the soil, is one of the most delightful and most instructive, and the most honourable pursuit in which a man can be engaged (*Loud applause*), and not only leads him to contemplate the wonders of creation and the works of nature, and of nature's God, but it also enables him, by the aid of successful industry, and by the application of science, to effect improvements which, under the blessing of divine Providence, cannot fail to be advantageous both to the age in which he lives and the generations yet to come. (*Loud applause.*) And although I should not for one moment undervalue or disparage the importance of any other great interest of the country, permit me to say that it appears to me that those who inhabit our crowded cities, and carry on their avocations in our towns—although undoubtedly the degree of perfection they have attained and the degree of science they have accomplished, are excellent and even wonderful—yet they are not the only persons who ought to be ranked amongst the benefactors of their country. (*Loud cheers.*) Those amongst us who are living in the more sequestered and less populous places, the agricultural districts—who are following the pursuits of an agricultural life—devoting their time and attention to the study and improvement of agriculture and the productiveness of our land—they, I say, are eminently entitled to the gratitude of their country, (*loud applause*), and should be

considered as being amongst the list of those who have conferred upon it the most essential and important benefits. (*Cheers.*) At the great annual meeting of the English Agricultural Society, held about three weeks ago at Cambridge, we were honoured with the presence of several of the learned professors of the University; and amongst others, with that of Dr. Buckland, the celebrated professor of the University of Oxford, and he stated, that although much had been done for agriculture of late years, much yet remained to be done. A knowledge of the different properties of the soil, and a judicious administration of the various strata, might, undoubtedly, tend to the improvement of the corn grown in this country, and, in some degree, provide better for our rapidly improving population. (*Cheers.*) These are subjects worthy of the consideration of the Yorkshire Agricultural Society, of which the noble lord is president; and from which office, as he has told you, he is now about to retire. I now call on you to drink his health in such a manner as will prove to him your gratitude for the time and attention he has devoted to your interest; and most heartily join with him in the hope that as he has witnessed improvements during the three years he has been your president, he may also find that the same degree of zeal and sincerity in the cause of agriculture may continue to characterise all our proceedings. (*Cheers.*) I have to propose "The health of the Right Hon. Earl Spencer." (*Tremendous cheers.*)

Earl SPENCER spoke as follows:—Gentlemen, I return you my most sincere thanks for the honour you have done me, and for the manner in which you have done it. As I have already told you, I am about to retire from the office, which I have now held for three years; this is, therefore, the last occasion on which I shall have the honour of addressing you from this place; but it is not, I trust, the last time I shall have the honour of addressing you from another place. (*Cheers.*) Although I shall not have the honour of being able to continue my services in the situation I at present hold, I hope I shall, in some other situation, be able to continue to offer you the best services in my power towards promoting your prosperity, and of contributing towards the flourishing state of your society. (*Cheers.*) I have always considered (and I always shall do so,) that it was a very high honour to have been selected as the first president of this society. (*Cheers.*) If you were looking for a president connected with your county—if you were looking for a person possessed of great property in your county, or even for an individual residing in your county—I am not the person to whom you would apply. I have no claim whatever to take the office which you did me the honour to confer on me; but if, as I believe was the case, you wished to find a man devoted to agriculture, and to agricultural pursuits—enthusiastic I may say in them—if you wanted to find a president who was desirous, in the greatest degree, to promote the improvement of agriculture throughout the whole country, I am ready to say, that you could not have chosen one possessing that desire more than I do. (*Cheers.*) Those around me may have the cause at heart as much I have, but I do not think that any have it more; and, in saying so, I am not perhaps saying too much. (*Cheers.*) You are all aware that in the course of my life—now not a very short one—I have applied myself to many and various pursuits, (*cheers and laughter*), but I have at last come to that which I believe to be my natural one—I mean the improvement of agriculture—the promoting of agriculture by

my own endeavours, and by assisting the endeavours of others (*Cheers*). Mr. Duncombe told you it was a pursuit worthy of being followed; I will tell those who are entering upon life that they will find no pursuit which gives more satisfaction—I will say they will find no pursuit which will give so just an occupation of their time with less annoyance and less disturbance to their tempers (*Cheers*). No other in which they will feel such full satisfaction that they are doing good in pursuing their own pleasures at the same time that they are improving the cause of agriculture (*Cheers*). We have emulation among us, and I hope we always shall; for if we have not emulation we shall never succeed; but, if we have emulation I hope it is far removed from the spirit of rivalry (*Applause*). Because, although each of us may wish to have as good cattle as himself (*Applause*). Agriculture is a pursuit to which one and all of us should wish success. It is one of those pursuits which is most delightful to follow; it is a pursuit which may be carried on without time ever hanging heavily; an occupation interesting in the highest degree, and while the agriculturist is promoting his own interest, he also promotes the interest of every one of his neighbours (*Loud applause*). I say, I am most enthusiastic in promoting the cause of agriculture, and therefore, as I said before, if your wish was to select a man as your president, who was likely to devote the whole of his energies to this subject, you could not have selected one more inclined to do everything to the utmost of his power to effect that object than myself (*Loud applause*). But, whatever was your object, or the reason for your choice, I certainly feel that you have conferred on me one of the highest honours, and I shall look back to the time when I had the honour of being your president for three years, with the greatest satisfaction (*loud applause*); and should it please the Almighty to prolong my life, I shall doubtless see you promoting the advancement of agriculture, benefitting the whole country, and distinguished by taking the lead in combining science with agriculture, throughout the whole kingdom (*Applause*). I now, gentlemen, return you my most sincere thanks for the kindness you have conferred upon me, and for the support you have given me since I have been your president, and I beg to drink all your healths. (The noble Earl upon resuming his seat, was loudly cheered.)

The CHAIRMAN then said—Gentlemen, on the two former occasions we have met we have been indebted to the commander-in-chief for the accommodation which he gave us, both for our show and the places in which we dined. On this occasion, meeting, as I have already said we have done, in a purely agricultural district, we had to depend upon others for that assistance. The magistrates of this riding have kindly given us permission to dine in the present building. I need not tell you, because you are witnesses of it, how convenient a building it proves to us on the present occasion (*Applause*). I think it quite as convenient, if not more convenient, than any meeting we have had. You are the better judges; yet I have had some practice, and am therefore a tolerable judge, and I believe I make myself heard throughout the whole room, which is an object not very easy to obtain. We are obliged, therefore, to the magistrates of the North Riding of Yorkshire, for having given us this accommodation; and I have no doubt you will cor-

dially join with me in drinking the healths of the magistrates of the North Riding, and thanks to them for the accommodation they have afforded to me (*Applause*).

Sir J. V. B. JOHNSTONE was then called upon. He said—My lords and gentlemen, although there are several gentlemen in this room, and at the elevated table, to whom, in my opinion, the answer to this toast could have been more appropriately allotted than to myself, still, in obedience to your lordship's call, I beg to return you the best thanks of the magistrates for the honour you have done them, 'in drinking their good health, and to assure your lordship and the gentlemen present that they felt it to be their duty and, at the same time, their greatest gratification, to be able to afford to this society that accommodation which these premiums afforded, as far as it could be done, without inconvenience to the discipline of the unfortunate individuals kept within these walls, and without injury to the building; for, my lord, they felt that by so doing, they were promoting the best interests of agriculture (*Applause*). It was natural that they, as landlords, and connected with the soil, should have their feelings and interests bound up with the success of agriculture; but it was not only as landlords that they were anxious to give to this institution the benefit of the accommodation, but because they feel that the best interests of this country are involved in the successful carrying out of the great objects which this institution was established to promote (*Hear, hear, and applause*). I say the best interests of this country, because in the present state of our population, depend upon it there is no object of such importance amongst all the great national interests, as that which has for its object the increase in the production of the food of man (*Applause*). I am not one of those who undervalue the labour of those who ply the loom, or engage in the other great branches of British enterprise, but he who is able (without increased cost) to make two bushels of corn grow where one grew before, (and though this is an old saying it is not on that account the less true) is as great a benefactor of his country as those who carry into practical effect the grand discoveries of a Watt or an Arkwright. You have been often told that one of the most valuable ends of institutions of this kind is that they connect together the practical farmer and the theorist. I am one of those who think nothing so valuable as the experience of practical men drawn from the concurrent testimony of farmers, and thus by the diffusion of knowledge by each man to his neighbour, a great advantage will accrue to the cause of agriculture (*Applause*). But I also feel persuaded the farmers of Yorkshire will only think they are doing their duty if they annually devote a small sum of money with the view of obtaining the services of persons eminent in those particular sciences more immediately connected with agriculture—those eminent men holding out to us as they do the right-hand of fellowship and good will, be they chemists, geologists, botanists, or men connected with mechanics. By devoting a small sum we shall enlist their services in our cause, (for you will agree, that experience though very good, is often rather dear,) to scrutinize nature in all her paths, to trace effects up to their causes, to enlarge the sphere of agricultural knowledge, and to be a signal to guide us while they will be a beacon to warn us (*Cheers*). If a gentleman be not very fond of his soil, let him take it to a chemist, or to a practical geologist, who would point out to him that particular ingredient or kind of manure which would be beneficial to his land. I have alluded to these subjects, because it was

the intention of the Committee of the Agricultural Society to obtain, under the auspices of Professor Phillips, a survey, on a limited scale, to see what management was suitable to different districts, how it was modified by the substratum under each soil, and the geological condition of it. This being our first entrance on this path, we were anxious to obtain the services of one eminent in his profession, in order that our investigation might accrue to the benefit of agriculture (*Applause*). It is with extreme regret I have to announce, in consequence of Professor Phillips's professional engagements, (which were such, that if they had been interfered with, it would have caused the greatest inconvenience to him), we have been unable to carry out that intention. But, gentlemen, no money has been expended upon it. We have it ready, and if Professor Phillips's other avocations will allow him to devote his time to this difficult subject, it is the intention of the committee to have this investigation conducted in a way which will meet with the approbation of all who wish well to agriculture (*Applause*). The Hon. Baronet again returned thanks, and sat down amidst loud applause.

WM. CONSTABLE MAXWELL, Esq., then rose and said, my Lord Spencer and gentlemen, I regret extremely that a more able person than myself should not have been selected to propose the toast with which I am entrusted: it is the health of the successful candidates for cattle. (*Cheers*.) I am sure we are all indebted to those gentlemen for the manner in which they have improved the breed of cattle in this country; and, I can say of the meeting to-day, that there is not a part of England, where more beautiful stock could have been shown. (*Applause*.) Gentlemen, I wish I could do justice to the toast, or to the individuals to whom it refers, or to the number and breed of the cattle they have exhibited; but I am sure, though we may envy those gentlemen their beautiful stock, yet still we shall not grudge them those thanks to which they are most justly entitled for the beautiful cattle they have brought this day to our exhibition, (*Applause*.) May they and their families long enjoy that which we all hope to enjoy through life—the roast beef of old England. (*The toast was drunk amidst loud applause*.)

J. BOOTH, Esq., said, my Lord Spencer and gentlemen, I rise in the name of the successful candidates to return you our best thanks for the compliment you have just paid us in drinking our health. (*Applause*.) And I can assure you, that we have been highly gratified with what we have seen to-day, and I hope that no exertion will be wanting on the part of my brother farmers, of the North Riding, to promote the interests of the Yorkshire Agricultural Society. (*Cheers*.)

JOHN WELBANK CHILDERS, Esq., M.P., said: My Lord Spencer and gentlemen, I regret that the toast which has been allotted to me has not been allotted to some one more conversant with the breed of sheep than I am, being myself a very young farmer. As yet I cannot boast of any sheep I have produced, nor have I any confidence in my own powers in that branch of agriculture. And this toast, I believe, has been allotted to me by the committee from an idea that a short paper which I recently inserted in a publication of the Royal Agricultural Society of England having excited some attention among the breeders of sheep, they might like to have from me *vice versa* some few particulars about it (*Cheers*). The point which my very few observations will embrace is the extraordinary increase in the growth and condition of sheep by being fed under cover, in an open yard, with a shed in it. This idea had no doubt

occurred to many others besides myself, but I am not aware that any one has so fully examined into the effects attending that enquiry as I happened to do in the course of last winter and the winter before. Gentlemen, the principle is one that we have acknowledged in every practical way, by everything that eats, namely, that if it has plenty to eat, is warm, and has nothing to do, it is very likely to increase (*Applause*). I certainly was not aware, until by repeated experiments I tested the truth of it, namely, that the same animals when placed in the shade and kept warm, not only increased rapidly, very much more rapidly in their condition and weight than when out in the open air, but also that they consumed a much smaller quantity of food. This I have tested, both last year and this. I have not the papers by me to refer to, but as far as my recollection goes, it is this, that the quantity of food consumed was less by at least one-third, and that the increase of weight was fully one third, taking it in round numbers. At the beginning of the season I built a shed which will contain about eighty hogs (a shed which will serve for cattle as well), and I merely put down a few rough planks for the cattle, as I have found that it is a great advantage to have boards to lie upon, and if they had straw, and it was to get wet, they would be liable to get the rot in their feet. I brought those animals up last Christmas, and I found that before two days had elapsed they did not eat so much as when they were out of the fold, by the proportion of five to three. When in the fields they eat fifty basketsful of turnips, but when brought up they eat only thirty a-day, therefore their improvement was in the inverse ratio of their cost. Yet such great progress did they make that you would have thought they had been eating fifty baskets a day when shut up, and only thirty when in the field. I gave them with their turnips a little oilcake, and certainly the size they grew to was so very great, that at thirteen months old I sold them without their wool for 73s. a-piece—(*cheers*)—and I really believe that if the turnips be pulled and brought into the shed they will go twice as far as when consumed in the field. (*Cheers*.) Gentlemen, after these few observations let me tell you that the toast which I have to propose for your acceptance is “the successful candidates for sheep.” (*Hear*.) This is pre-eminently a cattle district; and therefore, perhaps, the show of sheep is not so great as we have seen it. When we get into the country of the wolds we shall see more. At the same time, as far as my judgment goes, the sheep shown were very good. Those belonging to Mr. Allen, of Malton, were very fine, and Mr. Garforth's tup has the merit of having won three prizes this year, first at the Hackness show last month, secondly, on Monday, at Thirsk, and again to-day. (*Cheers*.) Allow me, before I sit down, to say a few words with regard to the other parts of the show. I consider that the show of cattle was the finest as to the short-horns that ever was seen in England. (*Loud cheers*.) I have seen several shows; I have been at both the Cambridge and the Oxford exhibitions, and also at that which I believe was superior to either of them—the show at Otley in the spring. (*Loud cheers*.) With that observation I may say that I think this show is the finest that ever was seen. We are going on progressively, and our shows are likely to go on and be better every year. And let me congratulate you that not only have we been honoured with the presence of the ladies on this occasion—(*loud applause*)—but also for the first time many of them have honoured us with their attendance in the show fields. This is an advantage which we derive from coming

into a beautiful agricultural district, with pleasant green fields. It shows that her Majesty's barracks-yards are not so fit as the pleasant green fields. Many of the ladies, I am sure, appreciate the show of animals as much as the other sex. (*Loud laughter.*)

"The successful candidates for sheep."—(Three times three.)

WILLIAM GARFORTH, Esq., said—My lord and gentlemen, I am proud of the pleasure of being present on this occasion, surrounded as I am by so many friends, breeders of short-horns, of sheep, and of horses, and other animals. I feel much flattered by the award of the prize to me for my shearling sheep, especially when I consider that I was a competitor with so many experienced farmers and sheep breeders. It was far from my expectation to gain a prize even on the first occasion, but when I heard, on my arrival here this morning, that I obtained a prize at Thirsk, and now know that a third prize has been awarded me, I am almost surprised at my own success. (*Cheers.*) In my own name, and in the name of my brother competitors, I beg to return you our thanks for the compliment paid to us, and for my own part, to assure you that so far as my humble support to agriculture can be given, it shall always be readily afforded. (*Applause.*)

H. S. THOMPSON, Esq., said—I rise with pleasure to propose the health of the successful competitors for pigs. (*Applause.*) One of the peculiar features of this society is the extreme harmony which pervades all our members. When we assemble at our great meetings we agree to forget our political differences and to lay aside our religious opinions, remembering that we are members of the same family, having one common object in pursuit; this object is dignified by being for the promotion of all ranks and classes of life. (*Applause.*) It is with much pride that I propose the toast which has been allotted to me; because I believe there is a great unanimity of opinion among us, that from the prince to the peasant the grunt of the pig furnishes a rich and savoury recollection. (*Applause.*) It would indeed mark the highest ingratitude in you, if you did not receive the toast with great cordiality; because I believe that there is hardly a person who has not made a meal on some part of the pig. (*Applause.*) It has been universally reported, and I believe it is true, that the farmer was attached to the pig from ancient recollections: therefore the pig ought to be held in respect and esteem. (*Applause.*) Noah, the patriarch, showed his respect and esteem for the pig by calling one of his sons Ham: and to come nearer to our own time, the sitch of bacon has long been held out as a sufficient reward for connubial happiness. (*Applause.*) From the observations which I have made, I fear that instead of proposing the health of the successful candidates, you will think that I am about to propose the health of the pigs themselves. (*Applause.*) We are greatly obliged to the judges of pigs, and also to the candidates who have by the great merit of their stock given the judges considerable difficulty this day. These people are entitled to our praise; for they have not only contributed to our pleasure this day, but also benefited us by improving the quality of the hams and rashers of bacon which adorn our tables. (*Applause.*) I will not trespass on your time longer, lest you should consider that I am a bore. (*Laughter.*) I give you—"The successful competitors in pigs."—(Three times three.)

The Rev. J. HIGGINSON said—Being a successful candidate in the swinish tribe, I return you my most sincere thanks. I have shown in that class very largely, and have been equally successful this year

and last. I have also exhibited in horses and cattle, in all of which I have been successful; and, if spared till our next exhibition, I will show in all these, and also in sheep. (*Applause.*) I will do the best I can; and after the great kindness I have received, I shall consider no distance too great to send my stock. (*Applause.*) This is the second year that I have attended these exhibitions, as an exhibitor; his lordship, our noble chairman, knows from whose stud I purchased my stock—Mr. Wiley was the gentleman from whom I procured it; and I am entirely indebted to him for the stock I possess; and as long as I have a shilling to give him, I will go to him again. (*Applause.*)

ROBERT DENISON, Esq., next rose and proposed the "Successful candidates for horses." He said, his friend Mr. Thompson had, in speaking of pigs, expended almost every term of eulogy and praise. Horses, however, in his opinion, ought to come before pigs, although, he was willing to allow that that animal possessed qualifications calculated to recommend it to the favour of society at large. (*Laughter.*) He found that Mr. Thompson had just left him one single qualification which he certainly might claim for the horses over the pigs (*laughter*), and that was action. He believed that the latter were not much famed for the beauty or elegance of their action. (*Laughter.*) Being a resident in the East Riding, he had always considered that division of the county as celebrated for its horses, but he confessed it was with some degree of fear and anxiety, for the credit of the East Riding, that he had witnessed the splendid show of cattle and horses which had been exhibited that day; and he believed, he must acknowledge, that in this respect the cattle shown at the East Riding exhibition were inferior to those shown that day. But although they were not so much a *beast district*—(*laughter*)—he thought that they (the East Riding) could make up for their deficiency in cattle, by their show of sheep. (*Loud cheers.*) He would not sit down without saying, and he was sure it was the feeling of all present, that whoever might be the committee appointed to manage the business of the exhibition at Hull next year, it was impossible that they could succeed better than the committee had done at Northallerton. (*Cheers.*) For his own part, he should be contented if they did anything near as well, and he would only say, in conclusion, that when they met at Hull, he trusted they should meet as large a concourse as they did here. He then gave "The successful candidates for horses."

The toast was briefly acknowledged by one of the gentlemen present.

WM. RUTSON, Esq., next rose and said, my Lord Spencer and gentlemen, the toast which has been committed to my care is one of the latest of the series; and, gentlemen, you are doubtless aware that the premiums connected with the class of animals to which this toast refers has not been given by the society, but by the generosity of one of its firmest friends. (*Cheers.*) Gentlemen, the larger animals which have obtained prizes have been duly celebrated; I will now endeavour to obtain your good-will while I advocate for a few minutes the claims of the animals mentioned in my toast. They possess especial claims upon your sympathy, a great deal has been said about ham, and I can assure you they make excellent companions to that dish, (*a laugh.*) I do not think that ham ever appears to greater advantage than when in the company of turkey. (*Laughter.*) I think those gentlemen who originated this prize, must have had something further in view than what is at first sight apparent—they

must have thought as I do, that farming is not a trade in which men grow rich at once. (*Applause.*) Gentlemen, I consider that every part of the farm should be turned to good account. I think you will concur with me that no part of the produce of a farm ought to be wasted; and, therefore, I would respectfully urge upon all the advantage of keeping poultry. In the consideration of this question it appears to me that you will have some difficulty in separating those animals from the person who has the care of them. The sheep are confided to the shepherd; the ox to the herdsman; and that more noble animal, the horse, to the groom; but, gentlemen, you will see for the most part, the animals I allude to, are confided to women. (*Applause.*) And you will all, I am sure, agree with me that whenever you trust a woman, she is invariably faithful to you. (*Loud cheering.*) Therefore, gentlemen, you will not, I am sure, while drinking this toast, separate this idea from your mind, but will consider that you are drinking the health of a daughter, a sister, or a mother of each of the company. (*Applause.*) He then gave "the successful candidates for poultry."

The Rev. JONV MONSON acknowledged the toast. He said: My lord and gentlemen, in the name of the successful candidates for poultry, I beg to offer you their best thanks; and to express how much they feel flattered by the attention you have shown to them this day (*Applause*). And having said this much upon this subject, it now becomes my duty to propose the next toast. "Prosperity to the Agricultural Labourers." I consider this body as one of the most useful and efficient of society (*applause*); and perhaps I shall not be thought presumptuous when I take the liberty of stating that I have stronger claims to speak in their favour than most other gentlemen. I have visited them while laid under privations and afflictions of the worst description; I have observed their patient endurance of those privations; I have seen their great exertions to provide for their wives and families (*applause*); and, my lord, I have also visited their humble joys during the hour of recreation; and I have generally had the satisfaction of seeing them behave with modesty and respect towards their superiors (*Applause*). I contend that this feeling of kindness ought to subsist between the landlord, tenant, and labourer; for they are all equally interested in each other's welfare, and ought to be united in one bond of sympathy and regard (*Applause*). My lord, may it please Almighty God to grant that this society may long continue its operations (*applause*); and I feel assured that you will all join with me in drinking, from the very bottom of your hearts, "Success to the honest Agricultural Labourer" (*Loud Cheers*).

JOSHUA CROMPTON, Esq., rose to propose the next toast, but his position being at one side of the room, he could not be heard by those in the opposite one; there were therefore loud cries of "get upon the president's table," which Mr. Crompton at length very agreeably complied with. He spoke nearly as follows:—In my humble situation as one of the committee, I have the honour of proposing a toast to your notice this day; it is the health of the illustrious vice-presidents of this society (*cheers*). Those high and distinguished noblemen who compose the vice-presidents of this society are the Duke of Leeds (the noble duke who was seated in front of the elevated table, was saluted with the most vehement cheering), Earl Fitzwilliam, the Earl de Grey, the Earl of Zetland, and Lord Faversham. (Each of the names of the above noblemen was received with loud cheers.) Now, gentlemen, if I was merely addressing persons who compose the popula-

tion of the North Riding of the county of York, some of their names would not be so intimately known to you, but as I know that I am now addressing persons who have come from all parts of the kingdom, but more especially from the three Ridings which compose this magnificent county, I think it is unnecessary that I should say much as respects their many virtues. Gentlemen, the five names which I have mentioned to you have long been endeared to most of you whom I have now the honour of addressing, by the many virtues of their owners; they are not only known and appreciated by this county, but throughout the whole kingdom (*Cheers*). Were I merely to call your attention to one of the five noblemen whose names I have presented to your notice, I am confident that you would drink his health with the greatest degree of enthusiasm; but now that I have called upon you to drink the health of the whole five, surely, gentlemen, I may expect that you will drink the toast with the greatest acclamation, which you think is due to these illustrious individuals (*Loud cheers*). I do not ask you to give them three times three—that you would give to any of them; but I ask you to give them that which is due, and which by their conduct they have deserved, and if they will allow me to give the time, we will make a shout that will be heard from one end of Northallerton to the other (*Loud laughter and applause*). I now give you "The Vice-Presidents, the Duke of Leeds, Earl Fitzwilliam, Earl de Grey, the Earl of Zetland, and Lord Faversham" (*Cheers*).

The Duke of LEEDS rose and spoke nearly as follows:—My Lord Spencer and gentlemen, as one of those individuals who have been honoured with the office of vice-president of this society, and whose health has just been drunk, I beg, in their names and in my own, to return you our best thanks for the honour you have done us (*Applause*). This I consider to have been a great day for Yorkshire, more than 1,400 gentlemen, I believe all engaged in the same pursuits and all having the same object in view—the advancement of agriculture—meeting together (*Applause*). After a day spent in examining and deciding to whom the premiums should be awarded—a task of no little difficulty, as I consider it to have been the finest stock ever seen—you are now met to celebrate your annual meeting by an interchange of the most friendly and social feelings (*Applause*). I congratulate the meeting and the county at large, upon the support which the farming interest has received (*Cheers*). Long may you continue to see the fine specimens of true stock that have been this day produced (*Cheers*). The owners, gentlemen, may justly feel honoured by the praises that have been bestowed upon them, more especially by the encomiums which have been passed on them by the judges (*Loud applause*). My lord and gentlemen, this is an age of improvement; every day we see, furnishes some improvement in civilized life—and why should agriculture remain stationary? (*Applause*). There can be no true ground for this. And when we see, throughout the length and breadth of the land, associations forming, and assemblies taking place like the present, for the purpose of encouraging all kinds of improvement, and for investigating any new discovery or invention, as regards the cultivation of the land or the improvement of stock, the greatest possible good may be expected to result (*Applause*). Gentlemen, in the name of those associated with me in this toast I beg sincerely to thank you, and I only regret that the duty has not fallen upon one more able, and one who has had more experience in stock than myself (*Applause*). The noble duke concluded by wishing that the noble chairman and those who acted with him in the cause of agriculture might long be spared to them to continue their efforts, and might every success always attend them. (He was loudly cheered on resuming his seat.)

M. WYVIL, Esq., said—I make no apology for offer-

ing the toast which I am about to give, because I feel confident that we should do a great injustice to the individuals who have taken a prominent part in the arrangement of this meeting, if we omitted to drink their healths. To the stewards we are much indebted for the arrangements in the field, and also for the facilities they afforded to the judges. I would also include the judges in my toast, because I am certain we are greatly indebted to them. No doubt the successful competitors are satisfied with the decisions, and I hope that those who have been disappointed will not allow any improper feeling to enter their minds, but will determine another year to be, if possible, more successful. I will give you the stewards and the judges, and I hope you will join in a general cheer to their health and success.—“The Stewards and Judges of the Show.”—*Three times three.*

Mr. TORR, one of the judges, returned thanks. He said:—I rise to respond to the toast which has been drunk, with feelings of pleasure, and beg to express the warmest gratitude of myself and my colleagues, for the compliment which we have received. (*Applause.*) Gentlemen, I regret that the task has not devolved on abler hands; I have yet to learn why one of the judges should be called upon to return thanks for a compliment which is more due to the stewards than to the judges. The stewards rendered us very great assistance by their excellent arrangements for bringing the stock before us. (*Applause.*) I have recently been at an exhibition at Beverley, where I alluded to the breeding of stock in the North Riding; for which it is as distinguished as the West Riding is for manufactures. The breed of cattle in Durham and the North of Yorkshire have not only supplied the whole of England, but the civilized countries of Europe and the the British colonies with an improved description of cattle, and I anticipate that our colonies will one day become famous for their stock, for the breed of which they are indebted to this and the adjoining district. (*Applause.*) I congratulate you on the splendour of your meeting this day—a meeting of the first importance, as I consider this is the first county association in England, second only to the English Institution. (*Applause.*) Having said so much, I would venture to allude to a subject most material to agriculture—the connexion of science with every part of farming. Much has been well said by the Hon. William Duncombe on this subject, and I would add my opinion as a tenant farmer, I have derived great advantage and benefit from the small degree of scientific knowledge which I happen to possess. I have paid some attention to elementary philosophy, which has taught me, when disappointed at the result of experiments, to be gratified at the attempt. The gratification will always exist when we are able to look at the cause as well as effect. I am not one to deprecate practice, but practice is better carried out by coupling of science with it. (*Applause.*) Gentlemen, I beg to return you again our sincere thanks, and drink all your good healths. Next year, we hear that the meeting is to be held at Hull, when I shall attend, not as a judge, but to offer some stock for the opinion of other judges. (*Applause.*)

The CHAIRMAN then said:—Gentlemen, I feel that we owe so much to the exertions of the local committee of this place, for the arrangements they have made for our show this day, that I could not resist reserving to myself the right of proposing this toast. Gentlemen, I am sure the general committee have done their best to promote the success of this society; but it would be impossible for them to go into details, and attend to the necessary minutiae, unless they had the assistance of gentlemen living on the spot, acquainted with every person who ought to be employed, knowing the locality and everything connected with the town. On the present occasion we had the good fortune to find gentlemen resident here who have devoted the whole of their energy, and taken the greatest pains in making the arrangements. (*Applause.*) In making these arrangements in a town like Northallerton, there are greater dangers to encounter than where are larger spaces already provided for exhibitions. In this case

the committee had to choose ground on which to have their exhibitions, and they have selected it with very great judgment and skill. They have had to make arrangements that the ground should be protected, because the fence we had for the ground to-day is an inferior one compared with the fences we had on former occasions; but, partly owing to the arrangements they have made, and partly—I would rather say, principally owing to the conduct of the agricultural inhabitants of this neighbourhood, no confusion arose—an attempt was made to intrude on the show-yard, and everything went on as if they had had a wall twenty feet high surrounding the show-yard. (*Applause.*) Those duties imposed peculiar difficulties on the local committee, but they have overcome them all. (*Applause.*) When I arrived on Monday last, I found everything in the most perfect order; there was no preparation to make, and no exertion was required on my part; I have merely to say, that everything was done which I could wish, and which I was sure the public could wish. (*Applause.*) Supposing the local committee had been negligent in their duty, it would have been impossible that the general committee, in the short time during which they were in the town, to have made arrangements which would have secured the success of the exhibition. In every respect and for every reason, I conceive we owe a debt of gratitude to the exertions of the local committee. I therefore propose the “Health of the Local Committee,” with three times three. (*Cheers.*)

Sir S. CROMPTON said, my lord and gentlemen, although I have been called upon to return thanks for the local committee, I cannot take to myself the merit which belongs to the other gentlemen; it is true there has been a very active, intelligent, and laborious committee of this place, I was nominally a member of that committee, but having other duties to perform it was impossible for me to give that attendance which I ought to have done, if I had not been prevented by causes which were totally unavoidable. It is, however, my lot to return thanks for the local committee. I certainly think, from the character of that committee, that no subject would be left unfinished and incomplete. With regard to the chairman of the committee (Mr. John Monson) he has filled the office much better than I could have done. He took all the laborious duties which belonged to the chairman and he was very ably seconded. (*Applause.*) It is equally unnecessary to expatiate on the merits of Mr. John Monson—it was well known he was ever ready to come forward in promoting any work of a benevolent character; he has devoted himself to the improvement of the condition of the labourer by the allotment system, and when named he came forward most readily as chairman of the committee. (*Applause.*) There is a wide field opened for improvement in this neighbourhood, and I believe the tenantry are most anxious to take advantage of every improvement that is made in agriculture. I beg again to thank you on behalf of the committee for the honour you have done us.

The CHAIRMAN said—I could have wished it had not fallen to me to give the toast which I am now about to propose, because although I am not properly named a member of the general committee I am officially connected with it, and have attended all its meetings. I have always acted with it and therefore am in part responsible for its proceedings. I had hoped that some other gentleman not connected with the committee would have proposed the toast, but no one having done so, though it is in part proposing my own health, I am persuaded you would not have been satisfied to have been allowed to separate without drinking the health of the general committee who have hitherto conducted the business of the society. (*Cheers.*) Gentlemen, in proposing this toast I have very little to add to what I said when I last addressed you, because the topics on which I should have to dilate would be topics very similar to those I made in proposing the health of the local committee. The general committee have, however, more extensive duties, and are in fact the governing body of your society. They have performed their duties well,

and the success which has attended their efforts is a sufficient proof. Gentlemen, this being the case I am quite certain you will agree with me that we should not do our duty by them if we did not drink their health, I therefore beg to propose to you.

"The General Committee."—3 times 3.

The Hon. Sir EDWARD MARNADUKK VAVASOUR, Bart., responded to the toast. He assured the meeting that the general committee were amply repaid for any trouble or labour they had experienced by the success which had attended the establishment of the society. It had no doubt been their anxious object to promote the objects of the society, but they would not have been able to effect it had they not been cordially supported by the honest tenantry (*Cheers*). It was amongst them that the society most particularly wished its branches to extend. Before the next meeting the country would be more connected by railways, and thus the means of transit would be easier, and the attendance at each future meeting consequently larger. Before the establishment of the Yorkshire Agricultural Society their had been district exhibitions of stock at Thirsk, at Beverley, and at Otley, but good as those shows had been it was thought desirable that Yorkshire should take the lead in this as in other matters, and he hoped it would take the lead in every branch of improvement. It was the largest county in England, and ought to be foremost in improvement, and he hoped the formation of this society would give a stimulus to the agriculture of England (*Loud applause*).

The NOBLE PRESIDENT rose and said—Gentlemen, I have stated to you that I regretted very much that it should have fallen to my lot to propose the last toast; on the present occasion, however, I feel, in proposing the toast which I am about to do, no regret whatever. (*Applause*.) On the contrary, I feel the greatest possible pleasure in proposing the toast, which is the health of the President elect, Lord Wharnccliffe. (*Loud applause*.) I feel the highest respect for his lordship, and I believe that he is likely to benefit this society in a high degree, and that he will discharge the duties of President in a manner most satisfactory to this society. (*Applause*.) Gentlemen, Lord Wharnccliffe is a man of very large possessions within your county—he is a man engaged very much in the arrangement of its business—confidently engaged, I believe, in the concerns of the county—and in all those transactions I believe he has always shown his qualifications for business to be very great;—this being the case, and his lordship having stated his readiness to undertake the office of your president, I feel that he will perform the duties of that situation as efficiently as any other duties which have come under his management. (*Loud applause*.) I feel confident that you will have everything in the way of business conducted agreeably. (*Cheers*.) Gentlemen, it is desirable that the President of the Yorkshire Agricultural Society should be a Yorkshireman of large possessions—it is necessary that it should be so—and therefore, gentlemen, I am sure that when you entrust this office to Lord Wharnccliffe, you will have done that which is most likely to increase your prosperity—which is most likely to insure that increase in your members, and your influence, which you have heretofore experienced, and which it is my firm belief you will continue to do. (*Cheers*.) Gentlemen, I beg to propose the "Health of Lord Wharnccliffe," the president elect. (The toast was drank with three times three and loud applause.)

The NOBLE PRESIDENT shortly afterwards again rose and said—I have now got through the list of toasts which were given to me this day by the committee, but I think, that as we are now sitting together, I shall not be wrong in proposing one toast more—it is, "Success to the society's meeting next year, at Hull." (*Cheers*.) Our success depends of course upon our own exertions, and hitherto we have been successful, and I have no doubt but the meeting at Hull, next year, will be equal to any we have yet had. (*Applause*.) A gentleman has stated that we shall have the benefit in the conveyance of stock of a railway communication, and there is also a water communication which will make Hull one of the most advantageous places for the meeting that is to be found in the county; and that, consequently, the

show may be expected to be one of the largest. (*Applause*.) In addition to this, Sir E. Vavasour says, that Yorkshire ought to take the lead in agriculture; but I thought when the honourable baronet made this statement, that I heard somebody dissent from it. I do not know whether that person is a Lincolnshire man, but if he entertains any doubt, why let him try what he can do next year. (*Laughter*.) I am glad to see that interruption—I am glad to witness a spirit of emulation going forth, and I hope we shall all see the effects it will produce—we shall see, I trust, what effect this spirit produces on a town possessing the advantages of railway and water communication. The noble lord again proposed the toast, which was drank with loud applause.

The noble chairman then retired, and the company soon afterwards separated.

ROYAL BOTANIC SOCIETY OF LONDON.

—At the usual meeting of the society, held on Tuesday, Benjamin Bond Cabell, Esq., in the chair, after the election of several new fellows, there was read, by Mr. George Thurtell, a highly-interesting and important paper upon the growth and pruning of forest trees, which was clearly illustrated by numerous specimens brought from Holkham, the seat of the Earl of Leicester, showing the advantage of a natural over artificial pruning. Having given a general account of the growth of trees, both as solitary individuals and as the collective members of forests and plantations, he deprecated the use of close pruning, instancing from the specimens he exhibited, that where the excision is made decay inevitably takes place, and that while nature conceals the wound by forming fresh wood over it, the unsound portion about to become the nucleus of future dissolution, is inclosed within the body of the tree, and thus, that which has the outward appearance of firm and healthy timber, may be in such a state of rottenness in the interior as to be incapable of supporting any ordinary weight. This was proved in a communication which he had received from the late Lord Suffield, who mentioned that in some buildings he had erected, the rafters had fallen in; here the inside of the wood was rotten, the marks of the saw being distinctly visible within the sound outside, plainly proving that close pruning had been used. By natural pruning Mr. Thurtell explained, that when the lower branches of a tree had performed the duties assigned to them they gradually die off, the tree thus, it may be said pruning itself; and, contrary to the effects of close pruning, in this case, no decayed wood was embedded in the new formation of the timber, but all was healthy and sound. In conclusion, he begged to call the attention of the proprietors of woods and forests to a subject which was so important, not only as regards the landed interest, but our national wealth.

THE SLEEP OF PLANTS.—The sleep of the vegetable differs in one respect from that of the animal, that it is not caused by exhausted powers; but when light, which acts as a stimulus, is withdrawn, then the stalks of compound leaves hang back and fold their leaflets together, or the leaves droop over the flowers, or cover the fruits so as to shelter them from the cold dews. This was termed by Linnæus the sleep of plants, and said by him to be analogous to the action of spreading the wing, by which some birds shelter their young during night. It is generally thought that Linnæus's term is somewhat hyperbolic; but that the cessation of the stimulus of light and the constrained position of the flower and foliage may be advantageous to the vegetable constitution in a way similar to that in which it is beneficial to the animal system. Sir James Smith remarks, that as the infant requires a fuller measure of sleep than is needed by the man, so the young plant is more thoroughly closed during night than the older one.—*From Flowers and their Associations.*

THE MODE OF CULTIVATION ADOPTED ON STINCHCOMBE FARM, BY MR. DIMMERY.

By JOHN MORTON, Esq.

(From the Journal of the Royal Agricultural Society.)

This farm consists of 200 acres of arable land, and although Mr. Dimmery, the tenant, rents another farm adjoining it, which consists of about 200 acres of meadow and pasture land, it is my intention to give an account of his mode of cultivating Stinchcombe farm only; the other land being used for fattening his stock of oxen, and producing hay and pasture for his sheep and working cattle. The arable land is situated on the south side of Stinchcombe Hill, which projects from the main body of the oolitic formation into the vale or low district of the county of Gloucester, and is much celebrated as affording a most beautiful and extensive view of the vales of Berkeley and Gloucester, the Severn, and the Bristol Channel. Around the south side of this hill the lower oolite assumes the form of a low terrace in front of the hill, and at least 300 feet below the top of it.

Stinchcombe farm is situated on this low terrace, and is about 150 feet above the level of the Severn. The soil of the upper part of this farm next the hill is composed of the *débris* of the oolitic rock, and is dry gravel, of little value, but all below this on the low terrace is of a good friable texture, partaking of the nature of the sub-soil or lower oolite on which it rests, and is well calculated for the production of barley and oats; it is neither too strong and adhesive for turnips and potatoes, nor too light and soft for the production of wheat under proper culture. This farm is about 16 miles from Gloucester, 25 from Bristol and Cheltenham, 4 from Berkeley, 3 from Wotton-under-edge, and 2 from Dursley.

ROTATION.

The production of the largest crops of the best edible kinds of potatoes, and at the least possible expense, being the principal object on this farm, Mr. Dimmery has found the course of cropping which he has adopted after an experience of upwards of 40 years to answer the best. The first year he takes turnips, the second year potatoes, and the third and last year of the course he takes wheat. About one-third part of the wheat stubble is sown to winter vetches, which are eaten off the ground by sheep, and as the ground is cleared it is prepared for a late crop of turnips, so that the whole of the land which was wheat is sown to turnips the following year. The turnips are all consumed by sheep folded on the ground in the usual way. After the turnips potatoes are planted on the whole the next year. To this rotation most farmers would object, as a crop of barley might be taken between the turnips and potatoes, and also from an absence of a crop of clover in the course; but it will be seen in the detail that in this course for 12 years there are 4 crops of wheat and 4 crops of potatoes, both of which are the most valuable articles a farmer can produce from the soil, and only four preparing or fallow crops. The land is always kept in the best state of culture, and its productive power is never diminished by any of the crops which are taken, nor does it require in any one year any additional labour to clean it from weeds. The expense, too,

of this course of cropping for 12 years is perhaps not more than that of the best system adopted by our most scientific practical agriculturists, in whose course alternate crops of corn and green crops prevail; by this course, also, a greater quantity of vegetable and animal food for the use of mankind is produced than can be grown in this climate upon soil of the same quality under different management.

VETCHES.

Soon after the wheat is harvested the stubble is cut and carted off the ground before the potato harvest is begun. About 20 acres, or one third part of the wheat stubble, is prepared for winter vetches. One ploughing only is necessary, and about 3 bushels of vetches to the acre are sown broad-cast, and the ground is well harrowed to cover the seed. The cost of the seed and the expense of once ploughing and of two or three single turns of the heavy harrows are the whole expenses attending the cultivation of this crop: nothing more is required beyond the keeping the field shut up from stock during the winter and spring months. Mr. Dimmery thinks that the land very soon gets tired of growing vetches, and as he therefore takes this crop on only one-third part of the land which is intended for turnips, and his rotation being only a three-course shift, the portion of the land which is required for this crop does not come round for vetches oftener than once in nine years. The value of the crop of vetches which these 20 acres produce as food for sheep is very considerable, and can easily be ascertained from the amount of stock which it keeps. About 340 ewes, 340 lambs, and 170 wethers are generally put on this crop about the second week in May, and are kept upon it till the first of July, or till the crop is all consumed. This amounts to about 7 weeks' keep for a flock of 850 sheep, or at the rate of about 5 or 6 sheep per acre per annum, which may be said to be free of all expense beyond the cost of the seed, as the land does not undergo more expence in preparing it for the turnip crop than if it had not been sown to vetches, and the manure left by the sheep, with what additional dung can be procured, always produces a good crop of late turnips.

TURNIPS.

As soon as the wheat stubble is all carried off the land, the sheep are brought from the pasture land where they are fed by day and folded on the land intended for turnips. Mr. Dimmery prefers folding the sheep on the land before it is ploughed, as they lie much drier on it. As soon as the teams can be spared, either before, during, or after the potato harvest, that part of the turnip break intended to receive the stable-yard manure is ploughed, and that part which is folded by the sheep is ploughed as it becomes ready. The second ploughing is performed early in spring, generally in February and the early part of March: there is nothing particular in the preparation for this crop, except that from the shortness of the rotation and the two cleaning crops in it, the land never requires to be ploughed for the purpose of eradicating weeds, but only for pulverizing the soil and bringing it into a good tilth. For this purpose the roller is frequently used after the land has been ploughed, and before the drags are applied the land is always rolled to break down or bruise the furrows that they may have a greater effect, and get down to the bottom of the furrows; and when the land drags up in lumps it is again

rolled before the second dragging. This is the most effectual method of completely pulverizing the soil; the harrow is very seldom used in effecting it; indeed it is very seldom used at all on this farm, except in harrowing in the turnip seed. When the land is properly prepared for the crop, all the dung that can be collected is carted on it, and is ploughed in with the last furrow; that for Swedish turnips in May and June, and for the other in June and July, and that which was in vetches as soon as the land can be got ready after they have been consumed by sheep. The whole is generally finished about the middle of July. The turnip seed is always sown broad-cast on this farm. The whole of the crop is consumed by sheep on the ground, which are folded in the usual way, receiving along with the turnips a sufficient quantity of hay supplied from the grass farm. The sheep are generally put on the turnips in the end of October, and are kept on them till near the end of the following April; all the land is either manured by the fold, the dung carted from the yard, or by the consumption of the crop of vetches by the sheep. The turnips produced after the vetches are generally the greatest crop. Mr. Dimmery frequently sows Swedes after them; indeed he prefers Swedes to any others, and it is only for early consumption that he sows the common sorts at all. He only hoes the crop once, which is carefully performed so as to separate the plants to a proper distance. He does not require to hoe for the purpose of destroying the weeds. The expense of this crop may be reckoned at three ploughings, two rollings, five draggings, and two harrowings, besides carting all the manure raised on the farm. The land being always clean, the crop of turnips never fails. They are universally a good crop; the 66 acres are equal to keep from 16 to 20 sheep per acre, from the end of October to the end of April, which is at the rate of 8 to 10 per acre per annum.

CABBAGE PLANTS.

There are generally between two and three acres of turnip break, or field, sown with cabbage seed for plants for the autumn and following spring; the preparation for which is the same as for turnips, with the exception of an additional ploughing and harrowing being given. The seed is sown in the month of August, and the plants are pulled to supply the demand. Mr. Dimmery raises his own cabbage seed, and therefore can always warrant his plants to be the best of their kind; he only raises two sorts, the early York and broad Battersea. The seed of these are mixed together before sowing, and in drawing them for sale they can easily be distinguished; they are sold from 8d. to 1s. per hundred. From 150,000 to 200,000 have been sold in a season. All those which remain on the ground in May are eaten off by the sheep, and the land comes in its course for potatoes. Although the return from this crop is great, yet the expense of weeding and pulling the crop, tying them up in bundles of sixty each, and carrying them to market, is also great. Mr. Dimmery gives an allowance to those who retail them, and thus saves all the expense attending marketing. His kinds are so well known, that the most of them are sold on the ground to people who come for them: they are pulled up by men and women, who tie them up in bundles as they are wanted.

POTATO CULTURE.

Preparing the Ground.—As soon as the sheep have consumed the turnips off a considerable part of

the field, the land is ploughed, to cover the manure left on the surface by the sheep, and to prevent it from being either washed away by the rains or evaporated by drought. This is performed by the ox teams, the horses being at this time of the year employed in hauling out the potatoes to market, and other work on the road. After this ploughing, the land remains to the end of March or the beginning of April. If there has been frost to pulverize the surface, another ploughing is not necessary, and the heavy drags, loaded with blocks of timber, and worked with six oxen, go over the land twice to a place, loosening the whole of the furrow slice. The land is then rolled with a heavy roller, to bruise all the lumps brought up by the drags, after which it is again dragged in an opposite direction. If the land works well, it will do for planting after being again rolled; but if there has been no frost, or if the winter and spring have been wet, and the land has got soured by wet, or baked hard by drought, after the first ploughing, it is then rolled by the heavy roller to crush the surface, that the drags which immediately follow may have a greater effect and get deeper into the ground. I would here observe that Mr. Dimmery has a perfect knowledge of the use of the roller as a most efficient implement in pulverising the soil. I have never seen the roller so much used on any farm as on this. The heavy drags, loaded as before described, follow the roller; the land is again rolled, to crush the clods raised by the drags, and the field is again dragged in an opposite direction; it is again rolled the third time, and is ploughed again, if necessary, and rolled, dragged, and rolled till the whole of the furrow slice is so completely loosened and pulverised, as to be easily formed into drills by a hoe. The harrows are never used on this farm, for there are no weeds to shake out, and Mr. Dimmery says his object is not so much to reduce the surface as to loosen the whole of the soil to the depth at which it was ploughed, and the greater this depth the better it is for raising a crop of potatoes.

Seed.—The varieties selected for cultivation are those which, from long experience, have been found to produce, not only good crops, but also potatoes of a quality and flavour suited to the tastes of those who consume them. Four kinds are cultivated for human food—the mossys, an early, round, white potatoe, of good flavour, rather yellowish within. Of this sort a small quantity only are planted; they are ready about the end of July. The round black, or black skin, very white within, mealy, and of excellent flavour, keeps good from October till the end of May; and the magpie, or red apple, which keeps the longest of any, is of excellent flavour and very mealy. This last sort will keep good till the mossys, or early potatoes, are ready the year following. Besides these, the white flat is a very prolific, mealy potatoe, preferred to all others by the inhabitants of Gloucester. The greatest breadth is planted with the black skins and red apples, and these are planted on the best land, the white flats on the poorest soil. In selecting the seed, great care is taken to pick out those of the true kind for planting; the seed or sets are taken from the middle sized potatoes, and they are generally cut in two, the principal object to be obtained being the greatest quantity of good edible potatoes not of the largest size, otherwise the largest potatoes would be selected for seed, and the tops of these only cut off for sets. It has been found that the tops of

large potatoes produce the greatest crops of the largest sized potatoes. Many people think it necessary to change their seed every three or four years, at least, and particularly their potatoes, as this plant, they say, degenerates more than any other; the seed potatoe on this farm has never been changed, except once about thirty years ago, when the crop was blighted by some cause, which induced a change at that time; Mr. Dimmery then got new seed from Dumfries, in Scotland, and these he has continued to cultivate without any symptoms of degeneration or deficiency of crop.

Planting.—Mr. Dimmery has found by long experience that early planting is attended with great risk, not only from the frost injuring the young shoots when they come above ground, which, being full of sap, are destroyed by the slightest frost (the potatoe being the first of all cultivated plants that are injured in that way), and the check which they thus receive to their growth is most injurious to the crop, reducing it in quantity from ten to twenty per cent., but because that when the potatoes are early planted, the spring rains solidify the earth around the plants, and prevent the fibres from running in the earth, or create a much greater expense in hacking or hoeing the ground, to give the degree of looseness necessary to secure a full crop. Early planting, therefore, is always avoided on these accounts. This operation begins on this farm about the 20th of April for the early, and the 20th of May for the late sorts (the ground being previously well pulverised and loosened to the depth to which it has been ploughed). The ridges being a perch in width, drills are formed across them, and the operation is performed in this way:—a man with a heavy triangular hoe, about four pounds in weight, something in the shape of a mason's trowel, but considerably broader, with a handle about two feet and a half long, begins on one side of a ridge, by making a hollow groove or drill across the whole of its width, till he comes to the other furrow. This he does by repeated strokes of the hoe into the earth, moving backwards after each stroke, drawing the hoe and the earth with him, and then lifting the hoe to make a fresh stroke and a fresh movement backwards. This operation is repeated till he arrives quite across the ridge to the furrow between the ridge he is operating upon, and the one adjoining it; he then turns about, and makes a fresh drill at the distance of twenty-two inches from the one last made, till he comes to the side of the ridge where he first began, and proceeds in this way till the whole ridge is formed into drills, at the distance of twenty-two inches apart, and about six inches deep from the edge of the earth raised up by the operation, not, however, more than three inches into the ground, about six inches wide at the top and about two inches at the bottom. No line is used to make the drills straight; the workman, from long practice, performs the work without one, and succeeds in making them not only straight, but at equal distances. This work, it must be observed, requires considerable force. The weight of the hoe, and the shortness of the handle, force the person working with it to use it in such a position of body as enables him readily to employ the whole of his strength to the best advantage. His body is bent forward, the handle of the hoe between his legs, and his labour is very much like that of a carpenter hewing a spar of wood with an

adze, only he makes the strokes, not so much by lifting the hoe high above the ground as by pressing it into the earth by the strength of his arms, added to the weight of his body. As the workman is proceeding with his work on this ridge, others are proceeding in the same way with the other ridges adjoining, but, instead of forming the drills in a straight line across all the ridges, each of them is designedly made to begin and terminate in the middle of the space between the drills on the ridges on either side of it, and this plan is universally adhered to throughout all the field. This may be thought a slovenly and irregular mode of proceeding with the work, and certainly it does appear so; for the field would look much better if the rows were in a continued straight line across the whole of it; but when the reason for adopting this mode of proceeding is explained, it will be evident that Mr. Dimmery has the best of all reasons for using it—viz., the obtaining by it an increase of produce. Every one, at all acquainted with agriculture or gardening, must have observed that potatoes, or any other plants, produce a greater crop when separated from each other by a considerable distance than when they are planted near each other, and that the outside plants of a row are more productive than any other plant in the row, every other circumstance being the same. Having observed this to be universally the case, Mr. Dimmery has adopted this plan of terminating the rows of each ridge precisely in the middle of the space between the rows of the adjoining ridges, and by this mode of proceeding he gets an increase of upwards of five per cent. more than if the rows were in a continued straight line across the whole field. The drills being formed, as above described, a man follows with a basket of soot, and sows it in the bottom and sides of the drills with his hand, walking up the middle of the ridge, and throwing first a handful of soot to the right and then a handful to the left, at the rate of about twenty-five bushels to the acre. The potatoe sets are then planted by women and boys, in the bottom of the drills, ten inches apart, and as the seed is deposited in the drills, a man follows with a hoe, about eight inches wide, and covers the seed by drawing the earth from the space between the drills, covering the potatoes which are planted by raising the earth higher over than it is between them. The earth being very loose, this is very easily accomplished. By this mode of covering it will be perceived that the whole of the soot does not come in contact with the seed, but is so placed as to give nourishment to the young roots. The whole of these operations of forming the drills, sowing the soot, planting the seed, and covering the potatoes, are going on at the same time. I have seen 8 adjoining ridges in progress at the same time; 8 men with triangular hoes making drills, 1 man to each ridge; 2 men sowing soot, 4 ridges to each; 8 women, 3 rows behind them, planting the seed; 2 men or boys carrying the potatoes to the women, and 8 men covering them in; 2 carts hauling the potatoes from the barn, where the sets are prepared; and 2 women filling the carts from the barn: thus 32 people and 4 horses are in constant and full employment, until the whole crop is put into the ground. The head lands are planted across in the same way as the other ridges, and the whole of the operation of planting is finished, and the field shut up till the plants begin to appear above ground. The forming of the drills, sowing the soot, planting

and covering the seed, only cost 6s. per acre, exclusive of cutting the sets, carting them, and carrying them to the planter, and of carting the soot. This seems certainly very little, but it must be recollected that the land is very loose, smooth, and finely pulverized; the price is the same now as it was during the war; there has been no alteration for the last forty years. To this, however, should be added the price of 3 quarts of beer to the men, and three pints to each woman and boy per day; and the wages which the men earn are 9s., the women 4s. 6d., and the boys 4s. per week; 16 men making the drills and covering the seed, and 8 women planting the seed, can easily finish 5 acres a-day with 45 sacks of seed.

Hoeing.—Hoeing (or *hacking*, as it is here called) is performed by the same peaked hoe which has been described, and used in forming the drills. As soon as the plants begin to show themselves above ground, this operation is begun, and is performed by men working with it in the same position as when forming the drills, only he is now under the necessity of lifting it up and making repeated strokes with it into the ground, thereby moving and loosening all the ground between the rows of plants, and also between the plants in the rows, taking care not to disturb or injure the plants; this work is performed by men at the rate of 8s. per acre, with 3 quarts of beer per day to each man.

Earthing up the Potatoes.—When the plants get from 4 to 5 inches above the ground, the earth is drawn up about them on both sides of the row. This is performed with a hoe about 8 inches wide; the plants by this operation are nearly covered, and it is found that the higher the earth is drawn up about the plants, the greater is the produce; it is therefore necessary to be particular in the performance of this work, as much depends on its being done properly. None of the plants should be covered, as this checks their growth, and gives their neighbours the start of them. In performing this part of the work, it must be observed that the earth is drawn up around the ends of each row, which projects in between the rows of the adjoining ridge, and no loose earth is left either in the furrows between the ridges or between the drills. In performing the whole of this operation, the object is to lay as much loose earth close round the stem of the potato as possible, that the runners on which the potatoes grow may not be obstructed in their growth in any direction; the expense of thus earthing up the potato is at the rate of 6s. per acre, with 3 quarts of beer a-day to each man. The field is now shut up till the time of harvesting the crop.

Harvesting, or taking up the crop.—This work is generally begun about the beginning or end of October, except the early sort, which are taken up to supply the demand, or whenever the haulm or leaves of the potato have withered and begun to decay. The first part of the process is to pull up with the hand the whole of the haulm or stalks of the potatoes, and lay them in parcels on the ground; any potatoes that come up with the stems in this operation are shaken out upon the ground; some hands begin this part of the business first, to clear the ground for the diggers to follow. This work is always begun at the lowest part of the field. The potatoes are all taken up with the spade, and this is performed by pressing in the spade with the hands (the foot never being used as in digging) behind a portion of the row, and scattering the earth and the potatoes he lifts up before him; this he does by turning the spade as he spreads;

the whole several feet from him every time he lifts a fresh parcel of the drills, and if he sees any potatoes remain in the ground they are twitched out by a sharp turn with one of the corners of the spade. Women and boys are employed in picking up the potatoes into baskets as they are thrown out upon the surface, and 1 or 2 men emptying the baskets into the cart or waggon, which takes them off the field to the storing-place. There is the same method adopted in taking up the crop as there is in planting it; there are 2 men to each ridge, with spades to lift the potatoes out of the earth, and spread them before them on the ground which they have already cleared. Each man works at his own side of the drill, 2 women or boys with a basket picking up the potatoes as they are thrown, besides a man for every four ridges, to empty the baskets, as they are full, into the carts. That the sorts of potatoes may be kept free from mixture, Mr. Dimmery gives to those employed all that run from their kinds, and therefore those employed on every ridge have a bag, into which they put all the produce of those which are not of the true sort and which is divided every night amongst those employed. From 40 to 50 people are employed in this work while it lasts; it is generally accomplished in about 3 or 4 weeks, if the weather is favourable. The men receive 9s., the women 4s. 6d., and the boys 4s. each, per week, with an allowance of beer. The whole expense of harvesting this crop, per acre, including the expense of the harvest-home, when a supper and plenty of beer and cyder are given to all the people who have been employed in the work, has in no year exceeded 21s. per acre. The average produce of this crop may be stated at 60 sacks, of 280 lbs. per acre, of good saleable, edible potatoes, of the magpie or red-apple; 70 of the round black skins and mossys; and of the white flats about 80 sacks; besides the broken and small, and those kept for seed, which amount to about 20 sacks per acre more.* The value of this crop, like every thing else, is regulated in some measure by the price of wheat, being about the same for a sack of potatoes weighing 280 lbs., as the price of a bushel of wheat. As to the relative value of the different kinds, Mr. Dimmery reckons that when the magpie or red-apple and early potatoes sell at 8s., the black skins, and white flats are worth 6s. per sack. The common mode of raising a crop of potatoes is by applying a large quantity of dung in contact with the seed or sets. This plan has been suspected of producing a disagreeable flavour in the potato; as however, we have said before, Mr. Dimmery's object being to produce the greatest quantity of good flavoured, edible potatoes, he has adopted the mode of applying all the dung to the turnip crop, and as this crop is consumed by the sheep, their dung is dropped regularly over the whole surface, and is intimately mixed with it by the succeeding preparation. The whole of the staple, to the depth of the furrow slice, is thus enriched, not only with all the dung applied to the turnips, but also with the produce of the whole turnip crop consumed by the sheep, without any portion of the manure coming in contact with the plant.

Storing the crop.—The kinds which are for im-

* That is an average (including chits and seed) of 90 sacks; equal to 11½ tons per acre; which is a very large produce, particularly if it be considered that the sorts planted are of "edible potatoes" for the table, and consequently not of the size of those usually grown for the feeding of cattle. F. BURKE.

mediate use are put into a large house or barn for the purpose, and the carts which fetch them from the field are put back into it and emptied; these are thrown together in parcels, taking care not to mix the several kinds; each are kept apart by straw, supported by boards or hurdles, and are easily taken out and carried to market, being only covered with straw. In the time of continued frosts, a fire is lighted in the house in the after-part of the day, which prevents the frost injuring the potatoes. Those which are to be kept till the spring and summer, and these are the most valuable kinds, are stored in a corner of a field, near to the road, and generally in the field which is to be in potatoes next year; they are put into heaps of not more than 20 sacks or 2½ tons each. This size is not so much for the convenience of moving one of these heaps at a time in a waggon, but it is found that they keep much better in heaps of this size than when they are larger; for when there is a great quantity put together they are apt to heat and spoil, and many of them rot. To prevent this, in the barn where a great quantity are put together, it is found necessary to separate them into small parcels with hurdles and straw, and turn them over now and then. These heaps are formed on the surface of the ground; the potatoes are piled up in the form of the roof of a house, they are then covered with straw, and about 2 feet from the potatoes, all around, a trench is dug, the earth taken from which is placed upon the straw about 8 inches thick, and beat close with the back of the spade; the whole of the surface of these heaps are then covered with the potato-haulm which was brought from the field, to keep out the frost and rain. The expense of covering the heaps with earth is 1s. 6d. each. I have seen 100 of these heaps in the corner of a field, so close together that the whole of the surface of the soil, to the depth of the furrow, has been moved between them, to cover them.

Preparing Potatoes for market.—In preparing the potatoes for the market, iron sieves, having meshes about 1 inch square, are used for separating the small potatoes, and carrying off any earth that may adhere to those which do not pass through the sieve. Wooden shovels, such as are used for turning malt, are used, and also iron shovels, made of round rods of iron, welded in the front to a flat piece of iron, forming the mouth, and on the back to a stronger piece of iron, to which the handle is fastened by a hose; these round rods are at the distance of about an inch from each other: the object of thus forming a shovel is not only to make a large, light, efficient instrument, but to allow the loose earth to drop through it, as the potatoes are lifted with it, from the berry or barn into the sieve. When the potatoes are to be prepared for the market, a sufficient number of hands are employed; the waggon is put in a proper place, and a man, having a sieve in his hand, a shovel full is put into it by another person, and he gives it two or three turns, and then empties it into a basket, which is a measure equal to a third part of a sack. Any broken or spoiled potatoes are picked out of the basket, during the time they are filling it from the sieve, by a boy, and when the basket is full, a man empties it into a waggon; the small potatoes which go through the meshes of the sieve are, from time to time, taken by a woman or boy, and separated from any stones or earth, and put into a place by themselves, either for seed or to be sold for the pigs. A man with a shovel, and 2 men with sieves, a boy, and a woman, are employed in thus preparing the potatoes from one pit at a time. The po-

tatoes are thus prepared for the market: the berries are never opened except for the purpose of taking them to market, unless in the spring, when they begin to sprout, when they are turned over in the way as already described. When they are prepared for the market, several turns more of the sieve is given to them, for the purpose of bruising the sprouts. The expense of this method of turning the potatoes is very trifling; 12 persons, men and women, can easily do 3 berries, or 60 sacks, in a day, or 4s. 6d. each pit of 20 sacks.

WHEAT.

As soon as the potatoes are all taken up, the field is dragged over once in the direction of the ridges; the edges of the drills, which may have been neglected by the spade in taking up the potatoes, are by this operation levelled, and any potato-haulm that remains is gathered up and carried off the ground; the wheat is then sown on the surface after the drags, and ploughed in; this is preferred to the common way of ploughing the land first and harrowing in the seed after. Mr. Dimmery's reason for this is, that the land after the potato crop is left so loose that it is necessary to get a good clod on the surface if possible. By this plan the firm earth at the side of the potato-drills is lifted up by the plough, and left on the surface. A team easily ploughs in an acre a-day, and a man and a boy follow with spades to clean out the furrows, and level any of the ground that may be left uneven. The quantity of seed is from 3½ to 4 bushels per acre, according to the time of sowing; the later it is sown the more seed is required. Mr. Dimmery thinks that farmers lose much by not putting seed enough into the ground. In the spring, about the month of March, the wheat receives a dressing of soot, at the rate of from 25 to 30 bushels per acre. The crop is reaped and stored in the usual way in the rick yard; the average crop is from 28 to 32 bushels per acre, but he has often had 40 bushels per acre; it is always clean and of good quality; there never was any smut seen on this farm; the reason, Mr. Dimmery says, is because he always sows *newly-threshed seed, the produce of the previous year*. The expense of preparing the land for this crop is only once ploughing, 4 bushels of seed, and 12s. to 15s. worth of soot (24 or 30 bushels), so that in the system adopted on this farm, the crop of wheat, which farmers in general reckon the most valuable of all their produce, and for which all their previous course is only a preparation, really costs Mr. Dimmery nothing, nor is he in any anxiety about the preparation. The crop of potatoes being his principal object, by the plan which is here adopted the land is left in the best state that such land can be left in for receiving the seed. All the wheat-straw is made into haulm (as it is called), for thatch, the value of it depending on the separate straws being kept whole and sound; the wheat is not thrashed in the common way, in the straw, as this would injure it for thatch, but it is prepared in the following way:—a cord is made fast in some elevated part of the barn, upon the wall or in one of the great doors, and a sheaf of the wheat in the straw is parted into as many parcels as a man can grasp with both his hands; he then places this parcel with the ears on the ground, holding them loosely in his hand, lifting up the parcel repeatedly, and letting them all drop to the floor so as to get the ears all even together: when he has effected this, he then takes hold of the parcel, directly below the ears of corn, and

takes it to the cord, and fastens it around close to the ears by a single hitch; he then, with a long-toothed comb, with a single handle like a rake, combs all the straw below the hitch, to get out any ears of wheat that may still remain, and also all the broken straw out of the parcel, searching for them by spreading out the straw with his hands; the parcel is then taken from the cord to a separate place on the floor, and the ears of wheat are cut off from the straw; the straw is then put in a place detached from the ears, until a quantity sufficient has been collected to make a bundle. The bundle is tied up with a strong band made of straw; each of the bundles is about 40 inches in circumference, and weighs about 30 lbs.; they are sold for 10s. per dozen. The expense of making the haulm is about 1s. 9d. per dozen, and of thrashing out the wheat from the ears is about 4d. per bushel. Every day's work is finished by carrying out the bundles, and thrashing out the wheat from the ears that have been cut off, and cleaning the floor for the next day's labour. There is an average of 2 bundles of haulm for every bushel of wheat, besides the broken straw and ears, which may in general be equal to 25 or 30 lbs. per bushel more; thus about 60 bundles of haulm is made from the straw of each acre, producing 2l. 10s. per acre for the straw, besides the price received for the wheat, which varies according to the demand.

MANURE.

The quantity of dung raised on this farm by the working cattle and the pigs, which consume the refuse potatoes, is not great for the extent of land in arable culture, particularly as nearly all the straw grown on the land is sold for thatch. To fill up this deficiency, Mr. Dimmery used to buy all the dung he could, and whenever his teams went out with a load of potatoes they brought home a load of dung; but this he has discontinued for nearly 30 years, and, in place of farmyard dung, he has found a most valuable substitute in soot, the carriage of which is not one-twentieth part of the expense of hauling the dung he used to buy. Soot, therefore, is an object of great importance to him, and as the carriage of it is light he fetches soot on his return when he takes potatoes to market, either from Gloucester or Bristol, both of which cities he supplies; he has found that there is a considerable difference in the quality of soot, and this difference depends, he says, principally, if not entirely, on the length of the chimney producing it; the chimneys of Bristol being much longer than those of Gloucester the soot of the former city is of a much better quality than that of the latter. The general price of soot is 6d. per bushel at Gloucester, 120 bushels cost 60s., while he pays 5l. for 140 bushels at Bristol, and yet he prefers the latter as the best bargain. He has lately sent to Cheltenham for it, because he gets it at a lower price, although he has to haul it a distance of nearly 25 miles. The quantity of soot used on this farm is upwards of 3,000 bushels a-year, one-half of which is applied to the potato and the other to the wheat crop; it is seldom that it is applied to the whole extent of either of these crops, but wherever it is thought the application would be advantageous the expense is never saved. As there is a considerable variety in the quality of the ground, some parts of it receive a much greater quantity of soot than others, and this whether the crop is wheat or potatoes. We have not been able to obtain from Mr. Dimmery any idea of how the soot acts in producing

such effects, as it evidently does, both on the potato and wheat crop: the effect of it is particularly evident on the wheat, for, however sickly it looks in the spring, its colour and the vigour of its growth is changed in a few days after it has been applied. Soot is evidently a very powerful manure, and a portion of its charcoal is in a state in which it is capable of being rendered soluble by the action of oxygen and water; it affords ammoniacal salts by distillation; the effects, therefore, produced by it on the growth of vegetables may be owing both to the ammonia and the solution of the carbon of which it is composed; but the experiments made by Mr. Malcolm with soot, recorded in the first volume of the *British Husbandry*, p. 337, are most convincing, as proofs of the superior value of soot as a manure.

ESTABLISHMENT.

Mr. Dimmery directs and attends to the performance of all the operations of the farm that are going on; although there is a greater variety of labour in the system which he has adopted than there is on farms in general, the whole of the several branches are so distinct and separate from each other, that one is finished before it is time for the other to be begun. When there are a number of labourers employed together, it is of great importance to have the faculty of order; with this power the whole can easily be arranged, so that every one shall perform his own work without interfering with those that are near him. The industry of each thus acts as a stimulus on the others, instead of retarding the progress of their labours. There are constantly employed on this farm 8 men and 8 boys, whose business it is to work the teams of oxen and horses; there is also a shepherd, whose business it is to attend to the sheep, besides those employed in planting, harvesting, and marketing the potatoe crop, and those employed in harvesting and thrashing the wheat crop. The working cattle are 12 oxen and 4 horses, with a saddle horse; only 2 oxen are put to a plough, but a boy is employed to drive them, besides a man to hold the plough; thus 6 ox and 2 horse ploughs can be worked at the same time; this is strength more than equal for all the work that is required in cultivating these 200 acres of arable land. There are always 4 of the oxen turned off every year to fatten, and 4 young ones brought to supply their place in the team. These are all of the Hereford breed, as they are not only good workers, but also good feeders. In the winter, spring, and summer, the 4 horses are generally employed in hauling the potatoes to market, and fetching soot home; but as they cannot perform the whole of this labour, Mr. Dimmery hires teams to assist, at from 16s. to 1l. a day, for a waggon and team of 4 horses. This costs him after the rate of 8d. per sack for hauling the potatoes to market. During the time of preparing his land, either for the potatoes or turnips, he generally hires teams to carry out all the potatoes which the market demands.

STOCK.

Besides the 12 oxen and 5 horses employed in cultivating the farm, there is a flock of sheep, consisting of 340 ewes, 340 lambs, and 170 wethers; the old ewes and wethers being generally sold off about Michaelmas, in good store condition, or fatted for the butcher. The whole of these sheep are kept on the arable land, from the middle of October, on turnips, till the middle of April, or sometimes till the middle of May, when they are put to the vetches, which will keep them till the middle of July. If the vetches are not ready for them when they have finished the turnips, they are taken to the grass

farm for a short time, and after the vetches are all consumed they again return to the grass land, and are fed on the latter till the end of October. There are also a number of pigs kept to consume all the offal potatoes; the number is very uncertain, depending on the quantity of small or broken potatoes which cannot be sold; for it is a rule with Mr. Dimmery to dispose of all the offal potatoes, if there be a demand for them, instead of buying pigs to consume them.

On examining into the merits of the system adopted by Mr. Dimmery, we are struck with the shortness of the rotation, the absence of clover and all other green crops as food for sheep, except turnips, the succession of two fallow crops, and the sale of nearly all the straw, which reduces the quantity of vegetable and animal manure to be returned to the soil. It is said that when a crop is repeated in too rapid succession, the soil soon gets tired of it, and the produce of it is gradually diminished: this we know to be the case in some instances, on certain soils. Saintfoin, it is said, will not produce so good a crop on any land the second, as the first time it was sown; and it not only diminishes in quantity on every repetition, but it will not remain so many years in the ground; and some farmers say that there ought to be a period of 30 years, at least, before it should be again sown on the same land. Clover seldom succeeds on sandy loam, or thin hashy land, when often repeated; and at the distance of four years it frequently fails. Turnips, also, on light sandy soil, when repeated at short intervals, grow fingery and of little value. I think, however, there may be some other reason for these failures, as a good coat of clay or chalk on the Norfolk and Suffolk land, when it gets tired of turnips, and produces them fingery, has the effect of giving to the land the power of again producing good crops of this root, and at the same intervals, viz., once in four years. When land is well calculated for the production of wheat, it is very evident that it will continue to produce this crop for a much longer period than land that is not fitted for its production. I have seen on good strong wheat and bean land, 10 good crops of wheat produced in 20 years, with alternate crops of beans, clover and summer fallow; the last crop much better than the first, and the land become more fertile and productive by this culture than before; but we could not expect to have an increasing return if we were to adopt this mode of cropping with wheat on light sandy soil. Much, therefore, depends on the kind of land, whether it is best calculated for the growth of the particular crop that is grown on it. I have before said, that the soil of Stinchcombe farm is neither too strong for the production of turnips and potatoes, nor too light for the growth of wheat. Although the soil be well fitted for the rotation adopted, there may be something in Mr. Dimmery's peculiar method of working the land, in preparing it for the several crops, as well as in this succession of crops, which may prevent them from being injured by their rapid succession. I have been in the habit of riding over the farm ten or twelve times a year for the last twenty-five years, and I can safely say that, instead of a diminution in the crops there has been an increase, not only in the yearly return of each of the three crops grown, but also in the quality and fertility of the soil. It is universally allowed that the principal merit of the Norfolk system is the quantity of food it produces for sheep: it is a maxim in agriculture, that the greater the number of sheep that can be maintained on an arable farm, the greater will be the produce of corn per acre; this is evident to every agriculturist, as it is not only the cheapest but

the most profitable mode of bringing land into good heart. "If I can only get a good crop of turnips, I shall be sure of a good crop of barley and clover, and then the land will be in excellent condition for wheat," is the language of every farmer when he sets about to clean his land in good earnest, and prepare it for turnips. In this rotation there is only one-third part of the land that produces turnips as food for sheep; and if we place this crop in juxtaposition with the turnip crop, in the Norfolk four field system, it will not appear to disadvantage, nor will there be a less quantity of food for sheep produced on this three-field than there is on the four-field shift, if the clover on the latter is mown for hay, and not consumed green on the land by stock; for we must remember that there are four crops of turnips in twelve years in the three-course shift, while there are only three crops of turnips in the same period in the Norfolk system. The quantity of manure, therefore, which the sheep leaves while feeding off the four crops of turnips during the twelve years, is at least one-fourth more than that which can be left by the sheep while consuming the turnips produced by the Norfolk system in the same period. It is said that one acre of land is well manured by 200 sheep, when folded on it one week, or by 1400 in one day. Now, if we reckon an acre of turnips to produce food sufficient for 12 sheep for 6 months, we shall have the manure of upwards of 2000 sheep for one day left on every acre that was in turnips, and this dressing repeated every three years, besides the manure of the sheep while consuming the 20 acres of vetches, which is nearly equal to that of the turnips. This, I think, is at least equal to, if not a great deal more than all the manure that can be produced on a farm of land of the same quality under the four-field shift, when no manure is purchased. The succession of two fallow crops is against all precedent in the agricultural world, although a succession of two corn crops is too often adopted in every county of the kingdom, to the injury not only of the farmer, but also of the land; and it is the greatest difficulty to get the farmers to give up this, for the alternate system of cropping. To propose potatoes as the most profitable crop after turnips would be reckoned the height of madness, but when we consider the potato as the most valuable crop that can be produced, this must be a reason sufficient for adopting a system that produces the price of 70 or 80 sacks of potatoes, at the same time that the land is receiving the best preparation for a crop of wheat the year following. It is very evident that this course of cropping must keep the land perfectly clean and free from weeds, both annual and perennial; the perfect fallow given to the turnips, followed by the preparation for the potatoes, with the complete culture given to this crop, must eradicate every weed from the soil. All the energy of the soil, all the enriching and vivifying quality of the dung, the fold and the soot, which is yearly applied, has its full effects on the crops which are cultivated, instead of being dissipated by the production of weeds. We must acknowledge that nearly the whole of the produce being carried off instead of being consumed on the farm, and converted into manure to be again returned to it seems, at the first view, to be the most objectionable part of the whole system; but when we examine the whole of the detail, and find that, instead of a dressing of from 10 to 12 cart-loads of dung once in four years, which is all our best farmers can produce, that Mr. Dimmery gives first a dressing of soot to the potato crop, repeats it again the following spring to the crop of wheat; that all the manure he can raise is bestowed for the production of turnips

the year after; and that in fact his land is manured every year instead of only once in four; that besides the quantity of manure left by the sheep four years out of twelve, he buys yearly from 80*l.* to 100*l.* worth of soot as manure for his land, we cannot help feeling satisfied that there is much more than a compensation for the loss of the straw and the potatoes taken off the land. Indeed, from our observation of this management for so many years, we are convinced that the system adopted is one that ought to be well considered by every farmer in the kingdom, because, that by it the land not only increases yearly in its productiveness, but that it also produces more vegetable and animal food for man, and at less expence too, than is raised by any other system.

The quantity of human food raised on this farm, and the number of families it will yearly maintain, may be reckoned thus:—We have before stated the vetches to be equal to the keep of 5 sheep per acre, per annum, and the turnips equal to the keep of at least 8 sheep for the same period; these two crops will be equal to 4 ewes, 4 lambs, and 4 tegs per acre; of these 4 are sold yearly, which produces at least 300 lbs. of mutton. The potato crop being equal to from 60 to 80 sacks per acre of 280 lbs. each, is equal to 16,800 lbs. of good wholesome food, and, besides what is reserved for seed, there are at least 10 sacks per acre more of offal potatoes, by feeding pigs with which, if we can produce 10 lbs. of bacon per sack, we shall thus have 100 lbs. of animal food, in addition, from this crop. The average of the wheat crop may be taken at 28 bushels, each of which will produce 70 lbs. of bread; this crop, per acre, will be equal to 1890 lbs. of bread; there are, therefore, produced from each of these acres 400 lbs. of mutton and bacon, 1890 lbs. of bread, and 16,800 lbs. of potatoes.

The advantage derived by the community at large from this mode of culture is evident from the increase in the productive food for man, thereby not only supplying the deficiency, but diminishing the price, of the first necessaries of human life.

JOHN MORTON.

Chester Hill, near Stroud, Gloucestershire,
December, 1839.

ON DRAINING.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In the Express of this week, a farmer north of the Tweed, asks for information respecting the draining of moss. In offering to him and others, through the medium of your journal, the following observations, I do not assume the principles to be novel, as another similar in some respects, will be found in writings on draining; but merely state the plans which I have found, under all circumstances, effectual. Before I observe on the course to be pursued, it will, I think, be better to state the peat mosses and bogs which I have drained, have been situated in the valleys of the south of England; where the cause of the bog (not taking into consideration any geological deductions from changes of surface) has invariably been, a confined body of water; the origin of which was, in most cases, and perhaps in all, many feet above the level of the bog. Mr. Lyell in his second volume of Geology, makes the following remarks on the growth of peat:—"The generation of peat, when not completely under water, is confined to moist situations, where the temperature is low,

and where vegetables may decompose without putrifying. It may consist of any of the numerous plants which are capable of growing in such stations; but a species of (*Sphagnum Palustre*) constitutes a considerable part of the peat found in marshes of the north of Europe; this plant having the property of throwing up new shoots in its upper part, while its lower extremities are decaying." Taking the above to be a description of the moss of your correspondent, I am induced to consider the plan proper for the draining of one sort of peat, to be also a principle applicable to any other.

The chief and primary object in draining peat is to ascertain the position, or nearly so, of the head of the spring or springs; these in the peats I have drained, which were of small extent, were very obvious, having generally found an elevation in the surface directly over the spring. Your correspondent states his moss to be level; there may still be some trifling elevations in the surface, or if not, perhaps he may observe parts of it to dry and burn in a different manner from the adjacent parts during very dry weather. The position of the adjoining land will also very frequently, if attentively surveyed, afford sufficient indication, and particularly so I should imagine in Scotland, where the primitive rocks prevail, the springs being less divided, and their sources easier ascertained on the tertiary strata. Having determined on the probable position of the springs, and considered the open drains and ditches required, a drain should be cut nearly on a level, about 3½ or 4 feet deep from the lowest point, and continued through the springs; or if the peat be extensive and the line of springs irregular, a main drain of the same depth should be cut from the same point in a parallel direction below, or at the side of the springs, making branch or side drains from it to each spring; or some springs may be cut through by the main drain, and others taken by their branches, as their position may indicate, the distance at which the drains should be cut, being entirely dependent on the probable number of springs. It should be noticed, though the surface may denote several springs, I have frequently by boring, and giving vent to that which from a greater elevation of surface appeared to be the principal, succeeded in draining several acres of peat. It will therefore be always advisable, after setting out the drains, to cut only such as are necessary for the draining of the supposed principal springs, leaving small turnings for the branch drains should they be requisite; every drain that does not lead to a spring, or a fresh body of stagnant water, being useless.

The kind of drain I have made use of is the covered stone drain, having an open conduit about four inches wide by five inches deep, which of course may be varied according to the quantity of water. To make a firm foundation to receive the stones, heath, gorse, or small bush-wood in its green state should be first laid, and trodden in well at the bottom of the drain, and stone broken rather finely put on it, with the smallest pieces or chip-pings of the stone over that, forming a plain surface which will do for either stones or tiles.

The drain for the stone will require to be 2, or 2½ feet wide at the top, and about 2 feet at the bottom, to allow room to set the stones in a proper manner; care should be taken that the side stones stand perpendicular, and well seated for the reception of the top or horizontal stones. The width of the drain for the tiles would partially depend on the size of the tile used; though as heaths, &c. will

be required for the bottom, it will be right to make it rather wider, that a more firm basis may be given to the tile. In filling up either the stone or the tile drains, I would recommend that the peat be laid immediately on them, care being taken that the stones are first sufficiently closed by adding a few small stones, and as soon as enough peat be put into the drain, that the rammer can be used with safety, it should be well rammed, and so continued at intervals to the surface. Much has been written about the drains being either filled loosely, or with small stones, to admit the water from the sides; but I am satisfied it is improper; they are less secure and durable, and by admitting the air the soil becomes so changed adjacent to the drains, that it will be impossible even in mixed, or more adhesive, soils to keep the water from filtering through. The depth to which the auger holes should be bored, will of course entirely depend on the position of the sub-strata conveying the water, which in all bogs that I have drained, is conveyed by the heading out of stone or porous strata, some very close to the peat, and some at considerable depths, varying from 15 to 60 feet; in some instances two or more thin porous strata may be passed by the auger before the main spring be tapped. The drains, after being prepared for the reception of the conduit-stones and well trodden on, should be left open till the silt which frequently rises up the auger-holes in considerable quantity is cleared away, or they will be liable to be choked up. I will not now enter into further detail, as it would occupy too much space; I trust I have written sufficient to illustrate the method, and if it should be the means of assisting in draining some of the most valuable land in the kingdom (provided marl, or clay and lime be afterwards applied), my object will be gained.

I am Sir, your obedient servant,

4th July, 1840.

AGRICULTOR.

ON THE SELECTION OF SEED GRAIN.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Some observations by different writers lately appeared in your paper on the subject of seed wheat, and at the late Cambridge meeting some of the speakers again introduced and enlarged upon it as one of great importance, which it no doubt is. Having had considerable experience as to the proper *quality* of grain to be used for seed, and formed an opinion respecting it different from the generally received one, I will, with your permission, cast my mite into the treasury. If the doctrine to be advanced should startle any reader into an instant condemnation of it,—if it is likely at first view to be denounced and repelled as unsound, let such an one pause, and before he comes to a hasty decision, let him, if in his power, put it to the test of experiment—a fair unbiassed experiment, without a pre-determination to arrive at a certain result.

Some hints of the following nature were thrown out a few years ago, and appeared in a work conducted by the late Rev. Henry Berry. That gentleman, in a note appended to the article, certainly demurred to the correctness of the doctrine in its application to cattle and sheep. As applied to seed grain, he made no remark. It seems, however, to be equally applicable to both.

Perhaps a premium for the best essay founded on experiments made on this subject, would be well by any agricultural society.

Agriculturists, then, generally choose THE BEST samples of grain for seed which is procurable in their respective, or in distant neighbourhoods. The question is, is this practice—that of selecting the *primest article* for seed—a wise one, or might not an article of *secondary quality* answer better?

There appears to be a limit set by climate, cultivation, situation, and local circumstances, to the *quality* of the produce of the soil. All cultivated vegetables have a tendency to degenerate, but this tendency is more than counteracted by the cultivation bestowed, until they arrive at a degree of perfection beyond which it does not appear possible, by any cultivation, to push them; and if this is attempted a recoil is induced, and a degree of degeneracy and inferiority in the produce appears to be inevitable. This is perhaps particularly the case in annual and biennial plants. Suppose a very prime sample of wheat is presented to us, such as might induce a farmer or corn-factor to pronounce it one of the best which he had ever seen. "An admirable article *for seed*, sir, I assure you." Softly, my good friend, perhaps you mistake. The presumption is, that this fine grain grew on land of the best quality, which was prepared in the best possible manner for it, that the circumstances attending its growth, ripening, harvesting, &c., had been particularly favourable, and that it had, in fact, arrived at the utmost perfection which it was capable of attaining. Now, if this fine grain is used as seed, what will be the result? of what quality will be the produce? Will it not be found to have degenerated, to be much inferior to the seed used? Improve it cannot—that it will remain stationary is just possible, but that it will go back is almost certain.

When grain is used which has reached the maximum, wheat weighing, say 66lbs. per bushel, barley weighing 58lbs. per bushel, oats weighing 48lbs. per bushel, is the produce reaped equal in quality to the seed sown, or is it not always a few pounds, and often a considerable number of pounds lighter? The plants appear to be constitutionally incapable of producing an equal to that grain from which they sprung, because it had attained that degree of perfection beyond which it could not possibly go, and therefore retrograde it must for a season; but having now room, it will advance again the following season, if climate, soil, and circumstances are favourable; should these be unfavourable, it will continue to retrograde.

If this doctrine is correct, it follows, that to raise a *first-rate article as produce*, we must use an article of *lower quality as seed*.

My attention was first directed to this subject in the year 1830. Having that year a small field to sow with wheat, for which I had no seed left, I procured as much from a neighbour. The quality was very middling indeed, considered as *seed* wheat, so much so, that the farm servants who picked and sowed it, &c., could not avoid regretting and grumbling during those operations, that such inferior seed should be sown on such fine land. The field had been well prepared for potatoes, had borne an excellent crop of them, and was in prime order; the soil a clayey loam. I was not at all satisfied myself with the course I was pursuing, but I had no alternative at hand, and sown it was. The crop was a good one, and was in due time thrashed out, when *nothing could exceed the beauty of the sample*. Just at that time the agricultural

society of the district announced a premium for the best sample of five tons of seed wheat; I became a competitor with the produce of the derided seed, and obtained the *first premium*. This is a fact well known in the neighbourhood where it occurred. The five tons were eagerly bought up for seed by different parties, and in every instance that I could ascertain the following season, the produce of it had degenerated.

The year following I sowed a large field with potato oats. This field had been part of the holding of a tenant who had rented it for seven years, and who had resigned it in wretched bad order. It was scourged out with over-cropping, poor in the extreme from the same cause, (not naturally poor) and crowded with root and seed weeds. The first season it was summer fallowed, and a number of boys, girls, and women were employed during the entire summer and autumn in collecting and burning the weeds which appeared after each ploughing and barrowing. In November it was ridged up for the winter. The next spring it underwent a preparation for Swedish turnips, and every root weed appearing was carefully picked off. It received an excellent manuring with farm-yard dung, and the crop of Swedes was very fine. The half of the crop was drawn off for cattle, and the remaining half was eaten on the ground with sheep. Having determined to lay it down to pasture for some years, and potato oats being then in great demand in the district, it was, the following spring, sown with that grain, drilled at nine inches, and grass seeds. The seed oats used on the occasion weighed 41lbs. per bushel. The crop was a splendid one, the produce weighing 48lbs. per bushel. It was shown for a premium offered by the society before-mentioned for the best seed oats, and the first or highest one was awarded to it. The article was greatly admired, and was all sold for seed, but in no instance that I could afterwards discover was the produce equal in quality to the parent; indeed in some cases the produce was so inferior that complaints were made by the parties who purchased it, hinting that they had been imposed upon, that the seed could not have been genuine potato oats, &c.; and various other causes, but never the right one, were assigned for the deficiency.

The same result occurred in the case of a field of barley, after turnips, which had been fed off by sheep. An article two or three removes from the best was used as seed; the produce was first-rate, and would also have obtained a premium had the grain not been very much discoloured by the prevalence of wet weather during harvest. Just about this time, I read in a Fifehire newspaper the account of a farmer's practice there, who was famed for growing good "seed barley" for sale. It was stated as a remarkable fact that the seed used by himself for raising the superior article he was famed for, was invariably of a *low* quality.

Public opinion has hitherto been against using any but the finest samples of grain for seed, judging that the finer the seed is, the better is the produce likely to be, and that, as vegetables incline to degenerate, the best plan is to sow the best seed of them which can be got, and thus avoiding degeneracy, and aiming at perfection. This would be all very well if the principle were a correct one, which it evidently is not; if it were, we should by this time have had wheat as large as beans, and as heavy. Grain of the weights I have mentioned, or approaching them, is about the limit

fixed by our climate for their attainment, and if we sow them with a view of raising a better or even as good, we shall find to our mortification, that instead of going forward we have been going backward. Change of soil and situation have no doubt an invigorating influence on plants subjected to them, but no change of soil or situation can add improvement to a production which has already attained perfection.

If "Nature is uniform in all her operations," and if we may judge of the whole of her great plan by a part of it, we have abundant evidence of the truth and correctness of the foregoing theory, in the habits of the cultivated potato. All practical men know that a potato tuber grown on good land, perfectly ripened there, mealy when boiled—a potato in fact as perfected as our climate, soil, and cultivation will permit, is the worst possible one for seed, because it produces a weakly, languid, unhealthy, curled plant, with a greatly diminished and greatly degenerated progeny; whereas, a watery, unripened, bad-to-eat potato is the best for seed, such being well known to produce a strong, healthy, vigorous plant, with abundance at the root.

It is pretty clear that, as yet, vegetable physiology is but very imperfectly understood amongst us, and those who have been attentive observers will be led to conclude that when vegetables, animals, or even the mental powers of man, attain an extraordinary degree of perfection, degeneracy in those particulars in which they have been superior seems invariably to await their offspring.

I am, Sir, your obedient servant,

P. C.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Would it not trespass too much upon the pages of your valuable journal, I shall feel indebted by your publishing the annexed account of failure in a crop of Swedish turnips; thinking probably some of your numerous correspondents may be enabled to inform me of the cause and its preventive. The soil is a deep clayey loam (without stone) and was reduced to a fine tilth; then dressed with 16 cart loads (two-horse) of farm manure, ploughed in and drilled the same day with Swedish turnip seed, at the rate of 4lbs. per acre, and 20 bushels of cinder ashes per acre, on the flat 18 inches, from drill to drill; the seed vegetated quickly, and the braird exhibited a good and healthy appearance when first hoed. In walking over the field about ten days after hoeing, my attention was arrested by some of the plants exhibiting a sickly and blueish appearance; upon a strict scrutiny, I discovered a great many of the plants decaying at the root, and exhibiting what is sometimes termed fingers and toes. Full one-half of the plants are now dead. I found a small white grub, and in some three or four about the length of a barley corn in the tap-root. I suffered a similar loss last year on the same kind of soil. The crop previously was a very great crop of wheat, and the land generally produces great crops of wheat and beans. Any information on the above will be esteemed a favour. I have the honour to subscribe myself,

Yours most obediently, T. D.

Godney, South Lincolnshire, Aug. 8.

ON CLAY.

Clay, (clay, *kley* Dutch, from *kleben*, German; *kley*, Teutonic; *kleg*, *cloeg*, Saxon; *glie*, Latin; *glaise*, French, from *γλια*, Greek, gluten; or from *γλινος*, Greek, *viscosus*, *glutinosus*, a clammy earth, tenacious and capable of being moulded,) is a mixture of several earths in common language, often containing a larger portion of silica than of alumina, from which the name is properly derived. It has been long known by the name of "argil" from "Argilla," Latin, from *αργιλλος* or *αργος*, Greek, white, as being a white earth, and *συνπτηρια* from *συνωω*, Greek, adstringo, et *Buglum* et *inula*, *gustu dulcis* decisi quæ gustantur, from "Halas" or alum, from the roots of the herb Comfrey yielding a sweet and astrigent liquid, sitim ledans; and latterly "alumen," from "*αλμη*" Greek, marl, or a salsugo, or salt at the bottom of salt pits; or from "lumine," from *αλειφως* Greek, ungo et illino, quia lumen coloribus tingendis præstat, being a sudor lapidis, a spuma dehis cens et coagulatus, and was formerly divided into "alum liquidum" or rock alum, and "alum scissile" or stone alum, and "alum catinum," or the kind used in making glasses. In our modern chemical nomenclature, the name "alumina" or rather "alumine" has been adopted from the French, and "alumina" is now defined to be the oxyde of "aluminum," one of the newly discovered metals, which unites with only one proportion of oxygen, and forms the well known base called "alumina," which contains 100 parts of aluminum and 8 of oxygen. It is the essential constituent of clay, and forms the basis of alum, enters into the composition of many minerals, is found pure in the corundum genus, and especially in the sapphire, and is a very abundant earth, entering into most soils and solid strata of the globe, the different colours arising from the various portions of the metallic oxyde. It has been called "argil" from forming a part of clays and giving them the plastic properties, and the ductility and tenacity in baking and working; but latterly "alumine," from being obtained in the greatest purity from alum. This last substance is a salt well known many centuries ago and used in dyeing, is a solid salt and sub-acid, sp. gr. 1.7 to 1.8, and occurs as an efflorescence on the aluminous minerals in Britain and in various parts of Europe; colour yellowish and greyish white, a farinaceous and stalactite efflorescence, sometimes pearly, glistening and vitreous; concretions curved and parallel, fracture conchoidal, dissolves in 16 to 20 times its weight of water, but in equal bulk of boiling water, absorbs 2½ times its weight of water, melts by water and heat, and is converted into a white spongy mass; is a triple salt, the sulphate of alumina and potash, and contains:—

Alumina	15.25	or	10.8
Potash	0.24	„	10.1
Oxyde of iron	7.50	„	00.0
Sulphuric acid and water	77.00	acid	33.7
		water	45.4

100.00 100.0

Rock alum from Monte Tofia in Italy contains:

Sulphuric acid	27.05
Alumina	31.80
Potash	5.79
Silica	28.40
Water and loss	3.72

Sp. gr. 2.4 to 2.6.

By other experiments alum was found to contain:—

Sulphate of alumina	49
Do. of potass	7
Do. water	44
	100

and,

Sulphuric acid	38
Alumine	18
Water of crystallization	44
	100

Alum heated in its water of crystallization, swells and enlarges much, and produces burnt alum, a light, porous, dry, mass which in a solution turns vegetable blues to red. Sp. gr. 1.7.

Rock alum of Monte Tofia contains:—

Sulphur	43
Clay	35
Silica	22
	100

and,

Sulphur	40
Clay	50
Fixed vegetable alkali potassa and iron	10
	100

The sulphuric acid is formed by the preparation by the sulphur, and potassa is added to make the salt.

By another analysis:—

Alumine	43.92
Sulphuric acid	25.00
Potash	3.08
Water	4.00
Silex	24.00
	100.00

Found in masses and veins and running through argillaceous rocks, and in secondary formations, and prepared by roasting and lixiviation.

The alum slate of Whitby occurs near coal, and differs little from bituminous shale impregnated with pyrites.

Rock alum belongs to the genus "Haloide" as being a stratified body; the former analysis belongs to the order "Salts."

Alum is used in giving a white colour to bread, and in preserving animal substances from putrefaction, in making leather and paper, and as a mordant in dyeing.

Alumina is a fine white bland powder, adhering strongly to the tongue, but excites neither taste nor smell. It is insoluble in water and alcohol, but has a considerable affinity for water, increasing in weight about 15 per cent. by absorbing moisture and retains it with great obstinacy; contracts by heat and dissolves readily in caustic potash or soda after ignition, dissolves slowly in sulphuric and muriatic acid, assisted by heat, and may be fused by a violent heat into a white semi-transparent enamel: sp. gr. 4.200 or 2.00 by others. It unites readily by fusion with other earths, particularly with silica, and much of its utility in the arts arises from this power of union. It unites by fusion with some of the metallic oxydes but not with metals, and by an easy dissolution in acid forms many salts more or less soluble and susceptible of crystallization, and others are insoluble and require an excess of acid. Alumina has a strong affinity for lime if it

exceeds the lime in quantity; if the lime be in excess, fusion does not take place. It does not combine with oxygen, nor with any of the simple combustibles, and azote has no action on it. It has a strong attraction for colouring matter, and hence the use in dyeing and in calico printing, and the union with silica and lime forms the basis of all pottery and porcelain, from the coarsest brick to the finest china. Alumine forms a paste with water and hardens with the action of fire, and loses the first property by acquiring the second; to regain it, it must be dissolved in an acid and precipitated; it is made hard enough to give fire by steel, and to cut glass with a diamond.

In the Natural History arrangement, the clay and lithomarge families are placed in the genus "Felspar," from their affinity with the preceding genera, as they have no regular form or cleavage, and are not connected with any of the mineral species. The clay family contains several divisions, of which common clay and potter's clay only require notice here. The former occurs in great beds in the alluvial districts, and includes the loam of which mud houses are built, and it is thought that the walls of Babylon, and the ancient city of Damascus, were built with bricks made of this substance. It occurs in many colours, as grey, brown, yellow, with spots of all the colours intermixed; massive, fracture coarse and small grained, soils slightly, frangible, sectile, friable and soft, adheres slightly to the tongue, and feels rough, greasy, or meagre. Earthy and slaty potter's clay occurs in beds in the alluvial districts; colour white and grey; massive, soft, and friable, adheres more strongly to the tongue than loam, feels greasy and becomes plastic in water; it is infusible, and contains:—

Silica	61
Alumina	27
Oxide of iron	1
Water	11

100

Its uses are well known in all pottery wares, in bricks, crucibles, and tobacco pipes, and it is also used in manuring land.

Clay is found in vast beds of alluvial or diluvial deposit in the tertiary formation, of which the chalk, or the most recent formation of lime, forms the basis. The omission of the term "diluvial" reckons every deposit to be "alluvial," that is more recent than the chalk, and so far simplifies the arrangement. Clay is much mixed with other bodies, principally with silica, and the different colours are owing to the presence of oxide of iron in different states and combinations. The prevailing colour of clay is brown or reddish brown, white, grey, yellow, sometimes blue, sandy and gravelly, often solid, more or less unctuous and soft to the touch; often dry and friable, and breaking into small lumps, from containing more silex and losing its plasticity, and there is perhaps no substance that enters so largely into the composition of bodies that is found in a greater diversity of composition. It enters into all good lands, slates, and all argillaceous formations; in fertile soils, argil forms 9 to 15 per cent. sp. gr. 1.58, in barren soils as much as 20 to 40 per cent. sp. gr. 2.20; the absence of it forms a soil too dry and porous, a proper quantity constitutes our best clays and clayey loams, and a superabundance of it forms soils too wet and cold for vegetable life in a moist state, and hardening and contracting by heat into a condition very hurtful to the growth of plants. The uses of

clay in pottery and brick-making are well known; for the latter purpose, the best proportions are, silex 86, alumina 14. The red colour of bricks and tiles is owing to the alteration of the oxide of iron during the process of burning, the iron being further oxidised by the decomposition of the water applied to the clay in kneading. Much oxide has a tendency to vitrify the bricks if any lime be present, and the proportions of silex and alumina also mechanically affect the character of the articles in making them too dry and rifted, and not sufficiently ductile. The quality and appearance are thus affected both chemically and mechanically.

Clays have been further divided into calcareous, meagre, and unctuous. The first effervesces with acids, is more friable than some others, owing to the presence of lime; is used in brick-making, and, by judicious burning, may be made semi-vitreous and very durable. Meagre clay is gritty, rough and coarsely granular, and is used for inferior articles, as bricks and tiles. Unctuous clay contains more alumine; if it contains little oxide of iron, it burns white and is used for fine ware; if more oxide be present, it becomes more fusible, and can only make coarser pottery. The purest clay contains upwards of 60 per cent. of sand, and is always mixed with mineral, animal, and vegetable substances.

The quality possessed by clay of imbibing and retaining moisture as much as two-and-a-half times its bulk without dropping, and rendering land more solid and consistent, and the very faulty composition of sands and all light lands in that respect, long ago led to the idea of improving the one soil by mixing it with quantities of the other, and to confer the quality that is wanting in the one by applications of the substances which have that quality in excess. Very great improvements have been made in many places by this application; but peculiar circumstances have occurred in rendering the application effectual. The light lands of Norfolk have been greatly and permanently improved by raising the clayey stratum below the soil and mixing it gradually with the land; but the clay is of a calcareous nature, and consequently partakes of the qualities of marl, and possesses a friability to fall down and crumble, and incorporate with the soil. In such cases, the improvement is obvious; but the great diversities found in the quality of clays, the convenience of getting it, the quantity required to effect any valuable improvement, and the difficulty of reducing to particles the clammy or indurated texture of the substance, operate in the different relative bearings on the expediency of the application. Ferruginous clays and those of a white sandy nature, and the gravelly sorts and many others, are positively pernicious; and it is only when the substance has attained a form of solid consistence more or less unctuous and friable, and pretty clear of mixtures, that the use of clay can be judiciously recommended. From 60 to 160 loads have been laid on an acre with much success; while in other cases, the return has been wholly inadequate, arising no doubt from the qualities of the contrasted substances, and also something on the mode of application, and very probably on the future culture. The best mode of applying it would be in laying it on sandy lands in autumn or in the early winter, when the action of the weather will assist to reduce the stiff substances, and afford an opportunity of being mixed with the soil by the fallowing of the land for green crops. Without a

very liberal quantity and attention to the application, little or no benefit will be derived.

When beds of clay are found of a solid consistence, and free from mixtures of sands and gravels, very good composts may be made by mixing it with lime in large quantities, that the latter may be able to penetrate and crumble the cohesive mass, dis sever the particles, and form a kind of artificial marl which is a very valuable manure either on arable or grass lands, particularly on the latter. A very general mistake lies in allowing much too small a quantity of lime, which produces no effect by being incorporated with the clayey substances, and in most cases the tenacious mass is carried out and laid on the land nearly in the same state as when laid in the heap, reduced a little by turning, and whitened externally by the lime; but it has not been subjected to the mutual action of affinity of particle, the essential aim and purpose in the preparation and application of all substances that are used as manures. There are few farms that do not afford materials for composts, which are in most cases wholly neglected, while a great desire is evinced for extraneous sources of a very uncertain and even feeble operation. It must always excite our wonder that the fullest advantage is not used of every natural supply in conjunction with, and even previous to the application of foreign assistance.

It would appear that the burning of clay for manure has been known for upwards of a century—but we are left in doubt if the substances used where clays taken wholly from the subsoil, or rather surface soil from fences and head-lands, and consequently containing a greater or less quantity of vegetable matter. In the latter case, the operation and effects of it are the same as in the process of paring and burning. The following observations will be confined to clays dug from the subsoil, and reduced by calcination as nearly as possible to a state of ashes. For effecting this purpose, large kilns have been erected and built with bricks, with a fire place underneath provided with flues to convey the heat regularly over the whole mass. These erections are expensive and stationary, and consequently incur an expense in carriage, when the places of procuring the material and of application are distant. They may be varied in size and form to suit the expected use of them; the cost of erection is usually objected, but when once expended, there is an end of it, and no repetition is made or called for. The simplest mode is to erect kilns of turfs and sods on the head-lands of the fields where the ashes are to be applied, and to mix the foundation of the heap with wood, straw, culms, or similar combustibles, and lay on clay as required and to keep the mass in a smothering state by a close surface. The main object to be attained in burning clay is to prevent charring, or the reducing it to brick-like substances by too strong heat; a flame must not be allowed, and the heap must be kept closely shut up from exposure. In order to produce a smothering heat, the air must be excluded as much as possible, and the smoke kept in; the clay should be applied in a moist state, which the heat gradually banishes, and steams the clay, without a tendency to harden it, which would follow if it was used dry. Some experience and attention is required in managing the burning process; but it may be conducted very economically when once a little understood. The ashes obtained by this mode will contain

vegetable matter from the turfs that are used, and from the outside walls and in laying the foundation; and it also supposes the clay to be dug from the field, which, if the quantity be great, will cause excavations that may be inconvenient, and where the country is well enclosed and the land valuable, the sacrifice of surface might be grudged, as the unsightly pits cannot be repaired. If the system be reduced to extensive practice, it is evident that one kiln or more must be built convenient for getting the material, and of a size to yield a quantity worth the labour and expense. The most approved plan is an oblong shape, built with bricks in the manner of a gridiron floor, with flues longitudinally and transversely, and a chimney at the end opposite the furnace. The flues are arched over to sustain the weight of the clay—the size may be 20 feet in length, 12 feet in breadth, and four feet in height, which will burn about 200 loads of clay, and cost about 10*l.* in erection. The expense of burning will vary with the cost of fuel; with wood, it has been stated at 2*d.*, and the whole cost with all labour included at 10*d.* per cart load; in other cases, from 4*d.* to 6*d.* exclusive of the cartage. After the quantity laid on the kiln is calcined, the fire is extinguished, and the ashes will require time to cool before application, if the crop of tender plants come into immediate contact with them.

Clay, or rather the surface soil of banks of head-lands in a cloddy state has been very advantageously burned, and the success is obvious where fuel, such as bushes, weeds, straw, wood, or gorse can be found, and where the land is in a rough state to afford the materials to be burned. All rough materials on newly improved and uncultivated lands, that would incommode the culture or require an inconvenient time to decompose and incorporate with the soil, may be very speedily and beneficially reduced by burning; but the propriety of going further and of interfering with the vegetable matter that should remain for easy and gradual decomposition in the soil by the operations of future cultivation, has been much doubted by many eminent practical and scientific men. The burning of the cloddy surface of land under aration, has also been practised, and it would appear with success in certain places, where materials are abundant; and while the benefits conferred on and by the effects of fire are undoubted, the want of fuel to effect the process in all enclosed and cultivated countries, will much check the adoption of the method, for if straw be used, the value of it may soon amount to a considerable sum, and may be supposed capable of a better application elsewhere. If small heaps of clods are raked and laid on a small quantity of straw or culm, the blaze will soon be extinguished, and the heat evaporated, from the wide exposure of the surface. If larger heaps be made, much fuel will be required, and very considerable expense in forming, and afterwards spreading out the heaps, and also much care and attention in smothering the fire, and preventing the outburst of the flame, and reducing the earth by a violent heat to a calcined substance, equally unfit for the purposes of vegetation, and incapable of mixing and of absorption. In closely improved countries fuel cannot be got, coals may not be applicable, wood is as dear in many places, straw is equally valuable, and gorse, hedge-cuttings, and prunings of trees are only obtained at certain periods of time, and in particular situations; but in localities that are suitable, and

in circumstances that admit the application, the process may be advantageously employed.

The most economical, and by far the simplest and most generally applicable mode of reducing the cloddy and clayey surface of land, is to lay narrow mounds of alternate layers of the clayey surface and hot lime, and to ignite it by exposure to the air, or by an application of water. A heap of seven yards in length, four in width, and three in height, mixed with seventy-two bushels of hot lime, has been recommended to be reduced to ashes, or nearly so, when fresh clay may be applied so long as sufficient heat remains. The heat exhaled from the lime will produce a smothering effect on the clay not easily obtained in the open air with a large or small quantity of flaming combustibles. In the former case, there is danger of calcination and uselessness, and in the latter of imperfect burning, and of the fire being extinguished from exposure, and the surrounding contact of air. The lime can be got at any time, and the process can go on during summer in wet or dry weather; the means are more at the command of the farmer, and the work can be effected more promptly on that account than when it depends on so many contingencies often altogether beyond control. The expense of burning in heaps has been stated at from 1s. to 1s. 6d. per load, and of clod burning at 12s. to 15s. an acre, but very little dependence can be placed on such statements, or on the loads that are said to be applied, or on the quantity of ashes obtained from a quantity of land, as circumstances cause a variation in every case. The quantity of ashes should be sufficient to cover the land when spread; if less, the application may be worth little, and a greater quantity can be got at a less proportionate expense than a smaller. The mode of burning by lime cannot be too much pressed on the attention of the farmer as a simple, effectual, and at all times available process, and the ultimate products are a mixture of finely reduced and pulverised substances to be blended and incorporated with the soil, on which acquisition so very much of the fertility of the earth depends.

About thirty years ago, the accounts of the wonderful effects of burnt clay as a manure made a great noise in the agricultural world, and it was assured that the substance would soon supersede the use of putrescent matters or any other manures, and that it could not fail to introduce a new era into our practice, and with results seemingly but little short of Mosaic miracles. It was applied at the rate of 30, 40, and 60 cart loads per acre, and produced a crop of 40 tons of turnips, and the success was so decisive over rotten dung of the farm-yards as to lead to the contempt and neglect of that substance, though it were offered free of cost, and with only a mile of carriage. The cost was about 6d. per load exclusive of carriage. Twenty-five loads of clay ashes have beat fifteen tons of dung; on corn crops, and on seed as a top-dressing, the results were very striking, and for green crops 20 to 30 cubic yards have been found equal to 8 or 12 tons of putrescent manure. In experiments between 400 bushels of clay ashes, 50 of soot, 100 of wood ashes, and no dressing, the superiority was trifling in favour of the former compared with wood ashes, one-half above soot, and nearly double the produce of no dressing, in the respective crops of swedes, kohlrabi, potatoes, and barley. The same superiority was observed in clay ashes over composts of clay, lime, and earth, and was even reported to show the unexpected quality of possessing more moisture than farm-yard

dung, and producing, in consequence of that property, a better crop of turnips. But these results were completely eclipsed by one individual case, which laid aside both farm-yard dung and the ploughing of the land, and substituted scarifying the surface, and the application of burnt clay. The advantages of the mode have been fully detailed, and though it may never be reducible to practice in the full extent, it contains abundant matter for reflection, and has not met with the attention that is due. Clay is composed of silica and alumina, oxyde of iron, some little inflammable matter, and probably some other substances in a very minute ratio. That these oxydes, which contain in themselves none of the elements of vegetation, after being again subjected to the action of fire, and partially oxidized, and laid on land, either broadcast or in a drill, and well cooled before application—should be more moist and nutritious to any crops, either in dry or wet weather, than a mixture of animal and vegetable matters prepared with similar care, bears an air of incredibility that is fully confirmed by the most rigid observation of the most extensive and enlightened experience. No one denies that stimulants are known that will produce great efforts in the animal body, but we know also that other substantial and nutritious substances are required to support that exertion, and that without them a repetition of the stimulants produces debility and ruin. Without attempting to establish an exactly similar analogy in the case of the earth being stimulated to produce a large crop of plants, as we have not the same means of ascertaining the causes that produce the effects, experience, our only true guide in such matters, fully warrants an inference very nearly allied to it; for the idea of supporting a fertility created by saline or any similar substances, will not remain long in the mind of any experienced cultivator. A person is very naturally surprised to think whence have been derived the astonishing results always published of the first application, not only of burnt clay, but of various other substances that have been applied as manures; they are seldom realized, and never found when fully brought to the fair and unbiassed test of experience. A sanguine and prejudiced mind often directs the process, neglects the proper observations, draws inferences from false premises, and a jaundiced eye frequently sees the results drawn up, and the statements which cannot be long repeated, even by the parties themselves. Without impugning the correctness or veracity of such statements in the particular cases of occurrence, much caution is always to be used in putting forth too much generalized opinions on such subjects. In the case of burnt clay, physical circumstances that always interfere and direct on such occasions, and the sober maxims of prudence, have now confined the use of it to the natural limits of convenience in getting the materials, and of the probable effect in relation to the cost. Waste grounds will afford a pit where the clay may be dug, and a permanent kiln erected near it; but on good lands, the waste and disfiguration of the surface will be grudged, for clay does not produce like plants by the application to land, substances similar to itself to repair the waste. Where a pit is convenient, the clay of good quality, and fuel not too dear, the method may be used discreetly, according to the above circumstances, and more especially by the effects it is seen to produce from being used on the fair and tangible grounds of comparative application.

Burnt clay possesses none of the caustic solvent effects of calcined lime. The water has been banished by the application of fire, and the earths have been divided and reduced to minute particles, and invested with an unknown property which bodies acquire that have undergone the process of torrefaction. The substance must be as completely powdered as possible, and may be applied on arable lands for any crop, either green or culmiferous. It can only act mechanically as an alternative in rendering the soil more friable, as the particles seem to have lost the power of coherence, and lie compact for a time without uniting; and in order to effect any valuable and permanent benefit, the quantity should not be less than from 30 to 60 loads, varying from 600 to 1,000 bushels.

July 18, 1840.

J. D.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At a Council held on Wednesday, the 22d July, in Cavendish-square, present, Philip Pusey, Esq., M.P. (President), in the chair; Marquis of Downshire; Earl of Euston; David Barclay, Esq.; Thos. Raymond Barker, Esq.; Colonel Challoner; J. W. Childers, Esq., M.P.; John Evelyn Denison, Esq.; John Kinder, Esq.; Sir Francis Lawley, Bart.; Sir Robert Price, Bart., M.P.; Rev. W. L. Rham; Edward Ayshford Sanford, Esq., M.P.; William Shaw, Esq.

The Secretary was directed to issue a notice to each Member of the Council, that the subject of the new prizes to be offered by the Society would be taken into consideration at the next meeting.

It was resolved, that a Deputation should be formed to attend the Meeting of the Highland Society at Aberdeen, in October next.

It was decided that the Society's Annual County Meeting at Liverpool, next year, should be held in the week after Liverpool Races, and that the principal day of the show should take place on a Thursday instead of Wednesday, as at Oxford and Cambridge.

The Committees of the Society having become extinct at the Annual Meeting, the Council proceeded, agreeably with the by-laws, to revive the Finance, Journal, Geological, and Veterinary Committees; Lord Braybrooke being added to the Finance and Journal Committees, and Sir Thomas Acland to the Geological Committee.

The Duke of Richmond communicated a paper from Mr. Bulmer, on the Cultivation of a Berwickshire Farm. Papers were also received from Mr. Alexander, Mr. Cresskill, and Mr. Thomas Wilson. Other communications were also laid before the Council from Professor Henslow, Mr. Porter, Mr. Manning, and Mr. Starkey.

At a Council held on Wednesday, July 29, present, P. Pusey, Esq., M.P. (in the chair), Earl Ducie, Earl of Euston, David Barclay, Esq., Thos. Raymond Barker, Esq., Thos. William Bramston, M.P., French Burke, Esq., Sir Charles Burrell, Bart., M.P., Colonel Challoner, John Ellman, Esq., Humphrey Gibbs, Esq., Stephen Grantham, Esq., Henry Handley, Esq., M.P., William Fisher Hobbs, Esq., Samuel Jonas, Esq., George Kimberley, Esq., Thos. Thornhill Morland, Esq., William Shaw, Esq., Thos. Weall, Esq., William Youatt, Esq.

The President read a letter addressed to him by his Grace the Duke of Richmond, thanking the Council, as his colleagues, for their vote of thanks for his conduct in the chair during the year of his Grace's Presidency, assuring them that he was most sensible of their kindness, and that it would give him at all times the greatest satisfaction to co-operate with them in carrying out

the measures which have been so favourably commended.

A committee was appointed, consisting of Colonel Le Couteur, Professor Henslow, and John Morton, Esq., to consider the best mode of forming a collection of samples of wheat.

Mr. Raymond Barker reported that Colonel Challoner, on the motion of David Barclay, Esq., had been duly elected Chairman of the Finance Committee for the ensuing session.

The council then proceeded to the consideration of the question of the new prizes to be offered for improving the breed of cattle, and the new subjects for prize essays.

Mr. W. D. Field, of Ulceby Grange, in Lincolnshire, presented the model of a shed for the equal distribution of linseed cake, or other food, to store cattle. Mr. Gibbs presented a specimen of the wool from lambs which were the offspring of the Doombaram and South-down ewes; and Mr. Cole, the editor of the "Yankee Farmer" (an American agricultural paper, published at Boston), presented several numbers of that journal.

A letter was read from Mr. Wyon, of the Mint, announcing that the dies for the society's medal were on the point of being completed.

The Hon. Bellow Nugent, of Ettingham House, Leamington, and John Nott, Esq., of Bydown House, near Barnstaple, were elected Governors; and the following gentlemen Members, of the Society:—

Honourable Colonel Greville Howard.
Sir Baldwin Leighton, Bart.
George Edward Blouchamp, The Priory, near Reading

Lord Sidney, Cleveland-row
J. M. Cripps, Newington, Lewes, Sussex
Richard Willis, Wanstead Park, Van Diemen's Land
Arthur Willis, jun., Wanstead, Essex
John Dicken, Waters Upton, Wellington, Salop
W. P. Hayward, Wilsford, Devises
W. Hodson, West Bletchington, Brighton
E. Majoribanks, 77, Harley-street, London
Rev. Basil Berridge, Alkerkirk, Boston, Lincolnshire
J. S. D. Selby, Chinnel Park, Berwick
William Bird, Bishop's Stortford.
William Cole, Oakington
William Bate, Warrington, Peterborough
John Postle, Smallburgh, Worstead, Norfolk
William Postle, Smallburgh, Worstead, Norfolk
Sir John Palmer
George Robert Gausson, Brookman's Park, Hatfield, Herts

Samuel Shrobb, St. Alban's, Herts
James Spirling, Halstead, Essex
Richard Knight, Duntun Hall, Brentwood, Essex
Sir Thomas Birch, Bart.
Thomas Buller, Joychurch, New Romney, Kent
William Carter, Boughton, Faversham
Henry Hilton, Solo-street, House, Selling
Nathaniel Rix, Ridge, near Barnet
Rev. Richard Fardell, Wisbeach, Cambridgeshire
A. S. Elliott, Hartford, Huntingdon
John Stracey, Rackheath Hall, Norwich
James Sandle, Great Ockendon, Essex
W. P. Standley, Peterborough
John Perkins, Gedney Hill
John Williams, Bedford
Rt. Ridge Ellis, Yelding, Kent
John Whitehead, West Barming, Kent
James Ramsay Warde, Yalding, Kent
F. C. Marsom, Cumberland Terrace, Regent's Park
John Thomas Mott, Bickling Lodge, Aylesbury
William Rutson, Newby Wisk, Northallerton
W. Baldwin, Hewell, Bromsgrove
J. Morris, Walcote, Bishop's Castle
Edward Umbers, Weston Hall, Leamington
John Whittington, Walton, Welsbourne, Warwick
Hon. Elliot Yorke, 4, Norfolk-street, Park-lane
Thomas Yard, Whiston, Devon
Philip Francis, Moore Crediton, Devon

Hon. B. Nugent, Effingham House, Royal, Leamington, Warwick
 Charles, Leslie, Glaslough, Ireland
 Dr. Harrel
 Robert Allin, Bailingdon, Sudbury, Suffolk
 Lewis Bucke, Esq., M.P., Moreton, Bideford, Devon
 Captain Lempriere, Alton, Hampshire
 John Reynolds, Wisbeach
 Rev. S. C. Smith, Denver Rectory, Downham
 Wm. Edw. Dewing, Leiston Hall, Suffolk
 Rev. W. Skinner, Rushton, Herts
 John Paris, Farnham, Essex
 Wm. Mott, Wall, Lichfield
 James Bailey, Nyncehead, Wellington, Somerset
 George Jebb, Brynkenatt, Chick, North Wales
 Captain Randolph, R.N., Wrotham, Kent
 Wm. Charles Smith, Shortgrove, Essex
 Wm. Downes, Dedham, Essex
 P. Pryse, Gwyddard, Aberystwith
 D. Blyth, Great Massingham Rougham
 Edmund Farrer, Spoile Swaffham
 Henry Brandreth, Oxford and Cambridge Chronicle
 and Houghton House, Dunstable
 Charles Boyer, Whittlesea, Cambridgeshire
 Charles Etheridge, Starston, Norfolk
 James Scott, Bromley, Kent
 Thomas Mortlock, Coombe Grove, Cambridge
 Colonel Best, Boxley, Stratham
 John Best
 T. L. Allen, Trinity College, Cambridge
 John Courtier, Morton Hampstead, Dover
 Wm. Chambers, Derby
 John Bromley, Derby
 Henry Mortlock, Caxton
 W. Ashling, Whittlesea
 Dr. Hopkinton, Stamford
 Thomas French, Eye, Suffolk
 John H. Tuck, Blofield, Norfolk
 J. Marshall, Hitchen, Herts.
 T. Elsom, Whittlesea, Cambridgeshire
 Henry Hayes, Whittlesea, Cambridgeshire
 John Child, Merton Mills, Surrey
 J. J. Tuck, Wortham, Suffolk
 J. G. Hart, Stowmarket, Suffolk
 John Brickwell, Leckhamstead, Buckingham
 R. Faulkes, Beckingham, Newark
 Sloane Stanley, jun.
 Nathaniel Forte, Trinity College, Cambridge
 Reginald Bryan, Trinity College, Cambridge
 Mark Cooper, Great Oakley, Essex
 George Bull, Great Oakley, Essex
 Rev. A. Austin, Compton, Wilts.
 W. Smith, Barton Mere, Suffolk
 George Smith, Barton Mere, Suffolk
 P. B. Smith, Great Clacton, Essex
 T. Croydon, Drayton, Penkridge
 R. Dudding, Ponton, Wragby
 G. Botham, Wexham Court, Bucks.
 J. Aldridge, Cippenham Burnham, Bucks.
 C. S. Cautrell, Manor Farm
 H. Cautrell, Baylip Stoke, Bucks.
 John Thistlewood, Lornecroft, Louth.

Peed, Anthony, Cambridge
 Brettell, John, Northampton
 Fuller, T., Dinemow
 Bird, J., Bishops Stortford
 Allenborough, Rt., Braybrooke, Market Harborough
 Golpin, J., Dorchester, Dorset
 Oliver, F., Dorchester, Dorset
 Warne, J., Upway, Weymouth
 Baker, Samuel, Hawkwell Hall, Rockford
 Francis, Benjamin, High House, Lechams, Norfolk
 Jackson, Thomas, Hill Redware, Staffordshire
 Thacker, Charles, Elford, Staffordshire
 Baulnois, Wm., 12, Abbey Road, St. John's Wood
 Bland, Clement, Frith House, Stansford
 Pinkus, Henry, Slaughter's Hotel, London.
 Bennett, Philip, Roagham Old Hall, Bury St. Edmunds
 Campton, Rev. Job, Overstone Rectory, Northampton
 Williams, Thos. Bryn, Beaumaris, Anglesea
 Bolden, J., Hynning, Lancaster
 Jones, A. G., Gloucester
 Garth, Rev. Richard, Farnham, Surrey
 Brooke, John, Great Walsingham, Norfolk
 Watson, G., Fakenham, Norfolk
 Sepping, E., Swaffham, Norfolk
 Abbott, Stephen, Castleacre, Swaffham, Norfolk
 Stappilton, Rev. Martin, Barlborough Rectory, Chesterfield, Derbyshire
 Maitland, Rev. J. G., Surrey Villa, Lambeth, Surrey
 Hunt, Rev. Geo., Barmingham Rectory, Botesdale, Suffolk
 Fitzroy, Capt. Hugh (Grenadier Guards), 3, Chesham Place, Belgrave Square.
 Callis, John, Mears Ashber, Northampton
 Hagger, Thos., Northampton
 Ringer, John, West Harling, near East Harling, Norfolk
 Brokenbrow, H. P., Beenham, Reading
 Garrod, Robert, Ipswich
 Stone, Geo., Fawley Farm, Wantage
 Carne, Rev. T. C., Breckenhurst, Southwell, Notts
 Milward, R., Hazgreave Park, Southwell
 Milward, Thos., Thengarton Hill, Southwell
 Ward, G. A., Downham Market, Norfolk
 Woolf, Jos., Haslington Hall, Nantwich
 Kellow, John, Woodhouse, Andover, Hants
 Hayward, Wm., Wilsford, Devizes, Wilts
 Bruges, Wm., Haxton, Amesbury, Wilts
 May, C. H., Sneyd Farm, Burslem, Staffordshire
 Stapleton, Valentine, Lincolnshire
 Bazalgette, S., King's Bridge, Swallowfield, Reading
 Lys, Stephen, Harlow, Essex
 Thompson, J., Ilford, Essex
 Stokes, Jonathan, Stamford Rivers, Romford
 Henry Handley, Esq., M.P., John Evelyn Denison, Esq., and Colonel Le Conteur, were nominated Members of the Deputation to the Great Meeting of the Highland Society.
 The name of C. E. Lefroy, Esq., was added to the list of Members of the Journal Committee.

SPECIMENS OF WHEAT.

It was resolved, that as Professor Henslow, Colonel Le Conteur, and Mr. Morton, had undertaken to superintend the formation of a collection of wheats for the Museum, members should be requested to preserve specimens of the ordinary wheats of their neighbourhood at the present harvest: five straws of the full length with the ear to be sufficient for each wheat; one being the best sample, and the other four average samples; members being requested to give the local name of each wheat, and any other local name with which they may be acquainted; and forward the specimens to the Society's rooms.

Captain Stanley Carr, of Trischenbeck, in the Duchy of Lauenburg, an English gentleman, who is successfully introducing the improvements of English Agriculture into Germany, and transmitting to this country those of the Continent, author of the "Prize Essay on Rural Economy Abroad," and of another paper in the Journal, on the "Rural Economy of Schleswig, Holstein and

At a council held on Wednesday, Aug. 5, present, Philip Pusey, Esq., M.P., President (in the chair), Earl of Euston, Thomas Raymond Barker, Esq., French Burke, Esq., Colonel Challoner, Humphrey Gibbs, Esq., Henry Handley, Esq., M.P., John Kinder, Esq., Rev. W. L. Rham.—

Henry Brandreth, Esq., of the Oxford and Cambridge Club, London, and of Houghton House, Dunstable, was elected a Governor; and the following gentlemen Members of the Society:—

Belham, Robt., Stow Beeton, Norfolk
 Brown, John, Little Hallingbury, Sawbridgeworth
 Alexander, James, Doncaster
 Balls, W., Stapleford, Cambridge
 Brand, John, Berwick Hall, Whitecolne
 Hoste, Derick, Berwick House, Docking, Norfolk

Lauenburg," having presented to the society a valuable and interesting collection of agricultural models for its museum, was, on the motion of Mr. Handley, unanimously elected an honorary member.

Colonel Challoner read to the Council the Report of the Finance Committee, recommending for payment the various premiums and other claims on the society, on account of the Cambridge Meeting, and cheques for the respective amounts were ordered accordingly. Colonel Challoner, as Chairman of the Finance Committee, also presented to the Council a balance sheet of the receipts and expenditure of the Cambridge Meeting, from which it appeared that the expenses attending the meeting exceeded the receipts by upwards of 100*l*.

The Imperial Society of Agriculture of Moscow was proposed by the President, and unanimously placed on the list of corresponding societies.

The Council then proceeded to revise the proof-sheet of the new premiums to be offered by the society.

Communications were received from Mr. Dean, Mr. Hillyard, Mr. Connop, Mr. Cuthbert Johnson, Mr. Lance, and Mr. Oliver.

Mr. Jones presented a paper and specimens, on the subject of "the Brown Turnip Grub;" Mr. Deck, of Cambridge, transmitted to the society, on the part of Dr. Buckland, two beautiful geological models of the Isle of Wight, and two models intended to illustrate the principle of Artesian springs. Mr. Raymond Barker submitted a specimen of the clover plant, growing on a chalky soil on his estate in Oxfordshire, from the Indian seed presented to the council by Professor Royle. Mr. Pinkus presented his work and drawing on a new agrarian system: The following publications were also presented:—Colonel Le Couteur, a copy of his valuable work "on the Varieties, Properties, and Classification of Wheat;" Mr. Maul-everyer, two parts of the "French Agricultural Monitor;" Mr. Wallis, his work on "Dendrology;" Monsieur Haricart de Thury, his Report to the French Agricultural Society, "on the Draining and cultivation of Vallee de l'Authion;" Mr. Youatt, the last number of the "Veterinarian;" the *Mark Lane Express*, the *Bell's Weekly Messenger*, the *Farmer's Journal*, and the *Magnet*, were also presented by their respective editors.

The next annual country meeting of the Society being fixed for the Thursday after the week in which the Liverpool Races take place. Mr. Wetherby (of the Haymarket) has informed the Society (at the suggestion of his Grace the Duke of Richmond) of the exact time when the races take place, namely, that they commence on the second Tuesday or Wednesday in July, 1841.

The meetings of the Council were then adjourned to the first Wednesday in September.

The business year of the Royal Agricultural Society of England may now be said to have closed, and having been an almost constant attendant at the council during the last twelve months, we cannot permit this occasion to pass over without bearing our humble testimony to the zeal, assiduity, diligence, and kind attention uniformly displayed in the performance of his duties during that period, by the Secretary, Mr. Hudson, and in which we feel convinced we shall be joined by all those members of the society who have had communication with him.

LIVERPOOL MEETING, 1841.

We beg the attention of our readers to the subjoined list of prizes of the Royal Agricultural Society of England, to be awarded at the Liverpool Meeting in July next year. From this list, it will be seen that an addition of five pounds to the prize for yearling bulls has been made, in the classes for

Shorthorns, Herefords, and Devons. In the class for cattle of any breed or cross, not Shorthorns, Herefords, or Devons, a very considerable addition has been made to the prizes. A second prize of twenty sovereigns will be given to the second best bull, calved previously to the 1st of January, 1839. A second prize of fifteen pounds will be given to the second best yearling bull, and a second prize of ten pounds to the second best cow in milk; being an increase of prizes in this class over each of the other classes of forty-five pounds. In the class for horses, additional prizes are offered; for the second best cart stallion for agricultural purposes, twenty sovereigns, and for the second best cart mare and foal ten sovereigns. The prize for stallions for breeding hunters, coach-horses, or roadsters, is altogether omitted. Now it cannot for a moment be questioned, that there was great impropriety in uniting the three different classes of horses into one prize, but we must confess we see no reason for the total omission of prizes for these sorts of animals. It may perhaps be considered, that the horse for agricultural purposes is more practically and generally useful, and therefore demands a greater degree of attention; but we nevertheless do not think, that the encouragement of a good breed of hunters, roadsters, and carriage horses, is a subject unworthy the Royal Agricultural Society. There is a certain class of horses that are commonly employed in stage-coaches, which will soon be in a great degree superseded by the use of the rail, as it is now cantly styled. But we do not anticipate seeing for some time to come, a country gentleman following the hounds on a steam horse, or the use of the roadster or the carriage-horse rendered unnecessary by the application of steam power. The English hunter and the English coach-horse are unequalled in the world, and we therefore cannot but regret that encouragement to maintain that superiority has not been held out by the society. In each of the classes for sheep, an additional prize is offered for the second best ram of any age. In the class for pigs, an additional prize is offered for the second best boar.

We are gratified in observing that the sum of 200*l*. has been placed at the disposal of the council, to be appropriated to rewarding the exhibition and trial of implements. Improvement in agricultural machinery is of the utmost importance to the farmer. This liberal sum, placed at the disposal of the council, with the prize of fifty sovereigns, offered for the best essay on Agricultural Mechanics, will, we trust, arouse the energies of those persons who devote themselves to the study of this subject. Here, however, we cannot but repeat the regret which we have on several former occasions expressed, that no direct encouragement is offered for good cultivation. Surely, if it be of importance that agricultural implements should be made upon the most effective and economical principles, both as to cost and power requisite to work them; it is of equal consequence that the hand which uses them and the head which arranges and directs the various operations to be performed, should meet with equal encouragement. An efficient implement in the hands of an unskilful workman will be comparatively inefficient; and

an efficient implement in the hands of an efficient workman will, at the year's end, exhibit very different results when directed by the skilful or unskilful master. A reference to the prizes, offered by the Liverpool Agricultural Society, whose members meet annually to the number of twelve and fourteen hundred, will show, that in the very district in which the Royal Agricultural Society will hold its next meeting, this subject is deemed worthy of attention.

PRIZES FOR 1841.

[The whole of the following Premiums refer to the year 1841, but the President and Council have likewise decided on the amount and subjects of the Prize Essays for the year 1842; and these also, when their terms and conditions have been determined, we shall lay before our readers on a future occasion.]

PRIZES FOR IMPROVING THE BREED OF CATTLE, 1841.

CLASS I.—SHORT-HORNS.

	SOVS.
To the owner of the best Bull calved previously to the 1st of January, 1839	30
To the owner of the best Bull calved since the 1st of January, 1839, and more than one year old ..	20
To the owner of the best Cow in milk	15
To the owner of the best in-calf Heifer, not exceeding three years old	15
To the owner of the best Yearling Heifer	10
To the owner of the best Bull Calf	10

CLASS II.—HERFORDS.

To the owner of the best Bull calved previously to the 1st of January, 1839	30
To the owner of the best Bull calved since the 1st of January, 1839, and more than one year old ..	20
To the owner of the best Cow in milk	15
To the owner of the best in-calf Heifer, not exceeding three years old	15
To the owner of the best Yearling Heifer	10
To the owner of the best Bull Calf	10

CLASS III.—DEVONS.

To the owner of the best Bull calved previously to the 1st of January, 1839	30
To the owner of the best Bull calved since the 1st of January, 1839, and more than one year old ..	20
To the owner of the best Cow in milk	15
To the owner of the best in-calf Heifer, not exceeding three years old	15
To the owner of the best Yearling Heifer	10
To the owner of the best Bull Calf	10

CLASS IV.—CATTLE OF ANY BREED OR CROSS—Not qualified for the foregoing Classes.

To the owner of the best Bull calved previously to the 1st of January, 1839	30
To the owner of the second best do.	20
To the owner of the best Bull calved since the 1st of January, 1839, and more than one year old ..	20
To the owner of the second best do.	15
To the owner of the best Cow in milk	15
To the owner of the second-best Cow in milk ..	10
To the owner of the best in-calf Heifer, not exceeding three years old	15
To the owner of the best Yearling Heifer	10
To the owner of the best Bull Calf	10

CLASS V.—HORSES.

To the owner of the best Cart Stallion for agricultural purposes	30
To the owner of the second-best do.	20
To the owner of the best Cart Mare and Foal for agricultural purposes	15
To the owner of the second-best ditto	10

PRIZES FOR IMPROVING THE BREED OF SHEEP.—1841.

CLASS VI.—LICEESTERS.

To the owner of the best Shearling Ram	30
To the owner of the second-best ditto	15

To the owner of the best Ram of any other age	SOVS. 30
To the owner of the second-best ditto	15
To the owner of the best pen of five Ewes suckling their Lambs at the time of showing	10
To the owner of the best pen of five Shearling Ewes	10

CLASS VII.—SOUTH DOWNS OR OTHER SHORT-WOOLLED SHEEP.

To the owner of the best shearling Ram	30
To the owner of the second-best ditto	15
To the owner of the best Ram of any other age	30
To the owner of the second-best ditto	15
To the owner of the best pen of five Ewes suckling their Lambs at the time of showing	10
To the owner of the best pen of five shearling Ewes	10

CLASS VIII.—LONG-WOOLLED SHEEP.—Not qualified to compete in class VI.

To the owner of the best shearling Ram	30
To the owner of the second-best ditto	15
To the owner of the best Ram of any other age	30
To the owner of the second-best ditto	15
To the owner of the best pen of five Ewes suckling their Lambs at the time of showing	10
To the owner of the best pen of five shearling Ewes	10

CLASS IX.—PIGS.

To the owner of the best boar	10
To the owner of the second-best ditto	5
To the owner of the best breeding Sow*	5
To the owner of the best pen of three breeding Sow Pigs of the same litter, above four and under nine months old ..	10
† It is to be stated in the certificate of the sow, how many pigs she produced in her last litter, and reared to the time of weaning.	

CLASS X.—EXTRA STOCK, ROOTS, AND SEEDS.

For Extra Stock of any kind, not shown for any of the above Prizes, and for Roots, Seeds, &c., Prizes may be awarded and apportioned, by the Committee and Judges, not exceeding in the whole 50

MACHINERY.

A sum not exceeding 200*l.* to be at the disposal of the council, to be by them apportioned for rewarding the exhibition and trial of Implements, if they should so think fit.

ANY IMPLEMENT.

For the invention of any new Agricultural Implement, such sum as the Society may think proper to award.

SEED WHEAT.

1. Thirty Sovereigns, or a piece of Plate of that value, will be given to the Exhibitor at the Liverpool Meeting of the best 14 bush. of White Wheat, of the harvest of 1840, and grown by himself.

2. Thirty Sovereigns, or a piece of Plate of that value, will be given to the Exhibitor at the Liverpool Meeting of the best 14 bush. of Red Wheat, of the harvest of 1840, and grown by himself.

(12 bushels of the wheat will be sealed up by the Judges, and one of the remaining bushels of each variety will be exhibited as a sample to the public. At the public meeting in December, 1842, the Prizes will be awarded.) The three best samples of the Wheat, without distinguishing between the three, will be selected by Judges appointed at the Liverpool Meeting, and will be sown under the direction of the Society, in the Autumn of 1841, by three farmers, who will make their report, upon which the Prize will be awarded. Ten Sovereigns will be given, at the Liverpool Meeting, to the exhibitors of each of those three samples.

GORSE-CRUSHING MACHINE.

Twenty Sovereigns, or a Piece of Plate of that value, will be given for the cheapest and most effective Gorse-crushing Machine.

1. The machine produced must be on a working scale, and at a cost that will be attainable by the occupiers of the smallest farms.

2. It must be capable of reducing the material to a pulpy state for the mastication of ruminating animals, as cows and sheep.

PRIZE ESSAYS AND REPORTS OF EXPERIMENTS FOR 1841.

1. VARIETIES OF WHEAT.

Twenty Sovereigns, or a Piece of Plate of that value, will be given for the best Report on the Comparative Merits of different varieties of wheat. Competitors will be required to state,—

1. Preparation and quantity of the seed; time and method of sowing; relation to preceding and following crops; nature of the soil.
2. Power to withstand severe winters.
3. Time of flowering, and of maturity.
4. Tendency to degenerate, and liability to disease.
5. Amount of produce in grain and straw, and the relative quantities of flour and offal.
6. Quantity of bread produced from 18lbs. of flour according to the process described by Colonel Le Couteur, in the Journal, No. 3 (1839, page 115.)

Not less than a quarter of an acre to be planted with each variety.—It would be desirable that competitors should consult Colonel Le Couteur's Work upon Wheat.

2. VARIETIES OF BARLEY.

Twenty Sovereigns, or a Piece of Plate of that value, will be given for the best Report on the Comparative Merits of different Varieties of Barley. Competitors will be required to state,—

1. Preparation and quantity of the seed; time and method of sowing; relation to preceding and following crops; nature of the soil.
2. Power to withstand drought or extreme wet.
3. Tendency to degenerate, and liability to disease.
4. Time of flowering and of maturity.
5. Amount of produce in grain and straw.
6. Malting qualities.

3. VARIETIES OF TURNIPS.

Ten Sovereigns, or a Piece of Plate of that value, will be given for the best Report on the Comparative Merits of different Varieties of Turnips. Competitors will be required to state,—

1. The comparative produce per acre of each variety treated of.
2. The nutritive qualities as compared with weight; distinguishing—
 - a. The varieties possessing early maturity appropriate for autumn stocking.
 - b. The more productive and nutritive kinds for general feeding; and
 - c. The more hardy varieties for spring and late consumption.

4. EFFECTS ON SUBSEQUENT CROPS OF WHEAT.

Twenty Sovereigns, or a Piece of Plate of that value, will be given for the best account of the effects of crops of beans, clover, vetches, potatoes, rye-grass, or any other crop, upon a subsequent crop of wheat. Competitors must state—

1. The soil on which the experiment was tried.
2. The crop preceding the wheat, and the manner of cultivating it.
3. The quantity of manure applied.
4. Whether fed or mown, and the quantity of produce if mown.
5. The species of wheat sown.
6. The manner in which the wheat was cultivated; and if manured, the quantity applied.
7. The produce in bushels of the crop of wheat.
8. Any other particulars that may seem important.

5. FOOD FOR LABOURERS.

Ten Sovereigns, or a Piece of Plate of that value, will be given for the best directions to enable labourers to prepare wholesome, nutritious, and palatable food, in the most economical and easy manner.

As the object of the Society in offering this prize is to procure such instructions for agricultural labourers as may enable them to supply themselves with the

greatest quantity of nutriment which the means at their command will produce, and to prepare a warm, comfortable, and nutritious meal for themselves and their families when they return home from their day's work, the competitors for it are requested to observe—

1. That the receipts must be given in such a plain manner as may render them available to a labourer or his wife, who are unaccustomed to cookery.
2. That the receipts must be such as may be used without requiring any apparatus which an agricultural labourer does not usually possess.
3. That they shall not require the use of any ingredients which he may not easily procure, either from his garden or in agricultural villages. This condition is not intended to preclude the recommendation of fish as a part of any dish.
4. The cost of the different fishes for which receipts are given must be accurately stated.

6. APPLICATION OF LIME.

Ten Sovereigns, or a Piece of Plate of that value, will be given for the best account of experiments on the application of lime as a manure. The competitors will be required to state—

1. How many years they have used lime as a manure, and how many acres they have limed each year.
2. What quantity they have put on per acre, and on what sort of soil.
3. At what time of the year, and for what crop.
4. Whether with or without manure, in what manner applied, and with what effect on the crop, and what on the succeeding crop.
5. The price of the lime; whether they continue to use it; the chemical description of lime they use; and any particulars generally respecting lime.

7. NITRE AND CUBIC-NITRE.

Twenty Sovereigns, or a Piece of Plate of that value, will be given for the best account of experiments on the application of nitrates as manures, including saltpetre (the nitrate of potash) and cubic-nitre (the nitrate of soda). Competitors will be required to state—

1. The quantity and mode of these applications, whether used before sowing, along with the seed, or after the blade is up.
2. Every particular of each experiment; and a comparison made with the same quantity of ground sown both without manure, and also with common yard-dung; stating the value of the manure in every case.
3. The result at different periods of the growth.
4. The conclusion come to from the experiments.
5. Not less than a quarter of an acre to be taken for each experiment; and to be varied as much as possible.

8. IMPROVEMENT OF PEAT SOILS.

Twenty sovereigns, or a Piece of Plate of that value, will be given for the best essay or report on the most successful means by which the improvement of peat soils may be effected. Competitors will be required to state the following particulars:—

1. Description of the mode, as far as it can be ascertained, in which the peat has been formed, whether by rain-water ledging on the surface, the oozing of springs, or under a body of stagnant water.
2. Description of the plants, from the decay of which the peat appears to be formed, and of the state of decomposition in which they are found.
3. Chemical account of any acid or bitter principle injurious to vegetation which may be found in the peat.
4. Account of any substance applied to the peat, either for correcting its chemical defects or improving its consistence.
5. Level of the water in the neighbouring ditches in winter and summer.
6. General treatment and mode of cropping.

9. SUBSOIL AND TRENCH PLOUGHING.

Twenty Sovereigns, or a Piece of Plate of that value, will be given for the most satisfactory experiment on the comparative merits of the two processes of the Sub-

soil and Trench Ploughing. The Society will require from Competitors :—

1. An accurate description of the ploughs used ; and also
2. Of the quality and state of soil and subsoil, with an estimate of its annual value before the commencement of the operation.
3. An account of the drains cut (if any), their depth and distance from each other.
4. A detailed statement of the subsoil and other ploughings to which the grounds have been subjected.
5. An account of any manure expended.
6. Of the bulk of produce of each crop.
7. Of the total expense of the operation so far as it has proceeded, and—
8. An authentic estimate of the improved value of the land resulting therefrom.

As the object of the Society is to ascertain as far as possible the advantages of subsoil ploughing, (in which the subsoil is divided by the plough but left in its original situation), and of trench-ploughing, (in which the subsoil is not only divided but is also brought to the surface), they strongly recommend to competitors that the two processes should be conducted on a piece of ground fairly divided into two lots of equal quality, and that the drains cut in each lot, as well as any assistance afforded by manure, should be similar on each of the lots.

10. SINGLE-HORSE CARTS.

Ten sovereigns, or a piece of plate of that value, will be given for the most satisfactory account of any experiments to compare the relative advantages of the single-horse carts which are generally used in Scotland, with any mode of conveying agricultural produce which is practised in any part of England, or in any foreign country ; having regard to economy of labour both of men and animals, quickness of work, and facility in loading and conducting the carriage.

11. AGRICULTURAL MECHANICS.

Fifty sovereigns, or a piece of plate of that value, will be given for the best Essay on the present state of Agricultural Mechanics, and on the improvement of which the various implements now in use may be susceptible.

N.B.—General conditions for all experiments on soils and manures.

1. The nature and depth of the soil.
2. The proportions of clay, sand, lime, or other substances, of which the soils are composed ; or otherwise to send specimens of the soils (in quantities of a pound or pint of each variety) to the secretary, on his application for them.
3. The nature of the subsoil.
4. When the ground is not level, the degree in which it slopes, and the direction (north, east, &c.) of its inclination, as found by the compass.
5. The two or three preceding crops ; the manure put on for them, and the produce of these crops.

These essays and reports to be sent in to the secretary on or before March 1, 1841.

ANALYSIS OF SOILS.—At the recent meeting at Cambridge, Professor Buckland stated, that it was important to the English agriculturist to know that there is a laboratory in London, in the Museum of Economic Geology, attached to her Majesty's Board of Woods and Forests, in Craig's Court, Charing Cross, to which any individual may send one pound of any soil of which he wishes to know what are the ingredients, and for a fixed fee (the Professor believed twenty shillings) obtain an exact analysis of the same, conducted by Mr. Richard Phillips, whose name has long been in the first rank of the analytical chemists of Europe.

THE WIREWORM.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I perceive by a letter in the *Mark Lane Express* of the 27th ult., by Mr. Hillyard, that he considers the wireworm to be the larva of the "Harry-long-legs," or, as it is called here, "Jenny-spinner." Mr. Hillyard is in error in supposing this, as the Harry-long-legs is produced from the grub that is frequently so destructive to the oat crop. I, many years ago, tried an experiment, which completely satisfied my mind ; and, as it may be interesting to some of your readers, I will detail it. I had a part of my oat crop very much destroyed by the ravages of the grub, and it having been stated that salt would destroy it, I resolved to try the double experiment of whether it would have that effect, and also what the grub changed into. To effect this I had a considerable number of them put into two earthen vessels—this was about the beginning of May—along with a quantity of soil, and also some oats ; and in the one vessel I put a quantity of common salt, and in the other I put none. I had them both well secured by having a piece of cloth tied closely over the top, which of course admitted air, while it prevented the grubs from escaping, at the same time that it hindered any thing to find its way in. I watched their progress with attention. Some time in the month of June they became rather larger in size, and not so active, and soon after went into the chrysalis state, and remained torpid till some time in the month of July, when they crept out of the hard husky skin of the aarelia, and appeared in their perfect form of Harry-long-legs ; and, as if to put all dispute out of the question, one of them had been unable to get clear of its covering, but was half way out, and dead. In the pot where there was no salt the oats grew quite luxuriantly, but in the other they did not vegetate at all, from the quantity of salt put in, but the grubs were nevertheless just as healthy as in the other where there was none ; thus setting at rest any hopes of killing them by the use of salt.

The appearance of the wireworm is very different from that of the grub. The former is a rather long, small, hard worm, of a yellow colour ; while the oat-grub is rather thick and soft, and of a dark brown or kind of green gray colour ; and their habits too are different, as the latter is commonly found in a rather damp part of a field, where the oats will suffer much from them, while the dry parts will be comparatively free, which seems to shew that these insects deposit their eggs in damp situations in preference to dry ones. The wireworm is more commonly found in dry situations, where they are sometimes very destructive to wheat, spring-sown ; the generality of failures of which I am inclined to attribute to the wireworm. They are often numerous in potato ground, and where they are so, if the wheat was not sown till the spring, they would almost entirely destroy it ; but when sown in the autumn, the blade acquires some strength before the spring, and thus prevents them injuring it so extensively ; and as they are probably in a kind of inactive state during the winter months, it escapes their ravages. Judging from appearance the wireworm would seem to remain in the same state throughout its existence, as you will find it in the same place for years, and while the land is in different kinds of management, and almost equally destructive to every kind of crop, except grass ; and that is perhaps owing to the nature of its roots. There is some land in my neighbourhood where red

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clover almost invariably fails, and has done so for years. It will be quite rank and healthy like in the autumn when the grain crop is cut, and in the following summer there will be just a patch here and there amongst the hay, and I am very much inclined to suspect the wireworm for this. The clover being tap-rooted, allows an excellent opportunity for the operation of its destructive powers. It is very easy to know turnips that are much affected by it; in a hot sunny day, their leaves will droop, and have a withered appearance. It is rather singular by what instinct crows are so well acquainted with turnips affected with wireworm; they will pull them up by the root, and clear off considerable patches of them. I never knew an instance of either wheat or barley being eat by the grub, but oats very commonly, and generally in clean well-conditioned land. They may be found in quantities when the oats appear above the ground, by turning back the furrow-slice, and at sunrise they may be seen creeping above the surface. An experiment similar to the one I tried might determine the nature and habits of the wireworm, and by knowing which a step might be gained in the knowledge how to destroy it, or in some degree to counteract its ravages. I have no faith in the power of salt being sufficient to effect it, and even if it had a tendency to destroy it, the quantity must be very great before there could be the most distant chance of succeeding.

I am, Sir, your obedient servant,
Aug. 6, 1840. A CUMBERLAND YEOMAN.

ON SOILING COWS, &c.

SIR,—In reply to your correspondent Tyro, respecting Soiling Cows, I beg to say that for four years I have soiled the whole of my dairy cows, and quite approve of the system. The two last years of the four I kept 24 cows in the stall during Summer upon green food, consisting of seed grass, good meadow grass, red clover, the lower leaves of the Scotch cabbage stripped off, and also the same of my mangel wurzel plants; all these were given as they came in, in the Summer, in five fodderings per day. Two men with a horse and cart are required to cut and carry the grass, &c., and fodder the cattle, and also to clean out the cow-house, water and tether the cows and assist the milking twice a day. No Vetches are given, as they are too heating for the purpose; and *too much red clover* was found to give the cows a tendency to cast their calves, though there is no grass known which produces more milk (and this probably is the cause of the effect above stated). The greatest difficulty is to have the grass, &c. come in *in proper succession*, so as not to be too old, on the one hand, nor too young and short, on the other; but this, after a little experience, may be accomplished. The result is, I think, as favourable as can be wished; my cheese was, at least, equally good as in former years, the quantity *greater* than when the cows were regularly kept in the pastures; and the cows were so much better in condition and appearance that I received from two to three pounds more per head for my spare cows, about the end of October, generally, than in other years, when pastured. They *rarely* go barren; but whenever that is the case, a ready sale is ensured by their good condition, for feeding. The cowhouse doors are kept open day and night in warm weather, to give the cows plenty of air; they are therefore *cool*, and quiet from flies; they rest well and are in every respect better; indeed,

so conscious are they of the benefit of the house, that no man, or number of men, could have kept my cows from breaking the fences and returning to the cowhouse, as I found to my cost when trying the experiment one warm day, and I was obliged to admit them again to their cool and quiet quarters.

I have no doubt that cows or oxen may be fed to great advantage in the stall in the same way.

One great advantage also is, that *half of the land* usually allowed to a milking cow as pasture will be sufficient for soiling. Another, that *very much dung* is made, and laid upon the land *where most wanted*, and if peat soil, saw-dust, or tanners' bark can be had, and placed *behind* the cows plentifully, an amazing quantity is produced, which may be spread upon the land as it is mown, and this, with the *wash from the cowhouse* carted upon the land in a barrel in the usual way, will be abundantly sufficient to keep the mown ground in *high condition*. One other benefit I will enumerate, which is, any cow failing to milk well during the Summer, may be permitted to go "dry" and be fed very speedily, as their superior condition upon the soiling system ensures this, which is no small benefit in a large dairy. Any farther information I can give is at the service of your correspondent. I am Sir, your obedient servant, M. O.

P.S. Can any of your correspondents inform me where the Guinea Grain wheats, and Brown's ten-rowed wheat are to be had, and the price per bushel?

I give you below a recipe for Foot-rot in sheep, which, though an old remedy, is *infinitely superior to Butyr of Antimony*, as recommended by some of your correspondents, and gives the sheep no pain, which is far from being the case with antimony.

Let the *druggist* mix as follows:—

Three oz. verdigris, 4 oz. alum, $1\frac{1}{2}$ oz. white mercury, 4 oz. vitriol, 1 oz. white copperas; reduce them to a fine powder, and mix them together. Then boil them in one quart of white wine vinegar, and it is fit for use. Pare the feet of the sheep affected, and apply the mixture from a bottle, with a piece of wood a little *hards* at the end, after shaking the bottle. The sheep should be kept in a dry place for an hour after dressing. I have used various remedies for many years, but the above is by far the best I ever saw or heard of.

ON WINTER TARES.

SIR,—In answer to your correspondent "Northern," I have sown the winter tare for many years, and always to feed, taking care to have them next to clover, grasses, &c. I feed the tares off as occasion may require, never letting them be eaten down too bare; they will furnish abundance of food, and will bear feeding upon the whole summer; my sheep feed over the whole field, and I now have them on one of the cleanest and best field of tares in the kingdom. They may be ploughed up and sown with turnips, or fed all the summer, and left for a wheat tilth; those who sow tares ought to be particular as to the variety, all Foreign tares are Spring tares; many farmers last autumn sowed Spring tares by mistake, and consequently the crops were all destroyed by the frost; a genuine winter tare, will withstand the severest winter; never seeding any myself, I always buy them of the growers; and I have never yet been deceived. Having Italian and other grasses which produce early seed, I do not sow tares early, as most farmers do. I have tried both, and I find the late sown the best; I have stated sowing tares; I always drill mine at nine inches. VERITAS.

ALLOTMENT SYSTEM IN RUTLAND, 1840.

On Monday and Tuesday, the 3rd and 4th of August, Richard Westbrook Baker, Esq., of Cottesmore, with a party of clergy and distinguished agriculturists, proceeded as in former years to examine and award prizes to the most meritorious occupiers of allotments of land upon Lord Barham's estates, under rules we believe arranged purposely for their management some years since, under the patronage of the late Sir Gerard Noel. The party expressed themselves highly gratified with the examination; and no less so, with the handsome, hospitable, and kind manners of their friend who has conducted with so much zeal and ability for eleven years this admirable system for the encouragement of industry and comfort of the labouring classes. The Judges were Messrs. Morris, Burgess, Berridge, and Pickering. The award was as follows:

UPPINGHAM.—*West Field.*

1st prize, No. 11, James Elliott, 10s.; 2d prize, No. 8, Thomas Nutt, 7s.; 3d prize, No. 14, John Mould, 5s.—given by Lord Barham.

Commended, No. 6, G. Crowden, No. 13, W. Baines, 2s. each, by Lord Barham.

East Field.

1st prize, No. 9, John Forster, 10s.; 2d prize, No. 2, Michael Cant, 7s.; 3d prize, No. 8, Thomas Dunmore, 5s.—given by Lord Barham.

Commended, No. 1, J. Coulson, No. 12, G. Nutt, 2s. each, by Lord Barham.

The Rev. J. D. Dimock, to all the unsuccessful candidates, in both fields, 1s. each, for good cultivation generally.

RIDDLINGTON.—*Old Allotments.*

1st prize, No. 7, Edward Russell, 10s.; 2d prize, No. 6, John Barfield, 7s.; 3d prize, No. 3, Wm. Wright, 5s.—given by the Rev. C. Swann.

Commended, No. 10, Henry Jackson, 2s., by Lord Barham.

Under the 11th Rule, "It is expected that every occupier shall attend some place of worship at least once every Sunday."

For "general good conduct," No. 7, Edward Russell; No. 3, William Wright; No. 9, Thomas Manton; No. 8, Edward Russell, jun., 2s. each, by Lord Barham.

No. 5, Geo. Pennystone, 1s. by Lord Barham.

No. 1 in this field disqualified under the 14th Rule.

New Allotments.

1st prize, No. 7, Robert Manton, 10s.; 2d prize, No. 5, William Manton, 7s.; 3d prize, No. 1, George Webb, 5s.—given by Lord Barham.

Commended, No. 3, John Dunmore, 2s., by Lord Barham.

Under the 11th Rule, 2s. each to all the eight occupiers, by Lord Barham.

EXTON.

1st prize, No. 57, Thomas Speede, 10s.; 2d prize, No. 32, Luke Hibbitt, 7s.; 3d prize, No. 5, Thomas Bullimore, 5s.; 4th prize, No. 24, John Young, 3s.; 5th prize, No. 57, James Speede, 3s.; 6th prize, No. 56, William Cross, 3s.—given by Lord Barham.

Commended, No. John Chamberlain; No. 2, Everard Cole; No. 25, William Smith; No. 45, John Fant's Widow; No. 51, Daniel Buckle; No. 53, Amos Hibbitt; 2s. each, given by Lord Barham.

WHITWELL.

1st prize, No. 2, Daniel Smith, 10s.; 2d prize, No. 1, Edward Smith, 7s.; 3d prize, No. 4, John Bolland, 5s.—given by Mrs. Ellicott, sen.

Commended, No. 10, Rt. Allen's Widow, 3s. by Lord Barham.

Under the 11th Rule, J. Hibbitt and H. Hibbitt, 2s., by Lord Barham.

COTTESMORE.

1st prize, No. 9, John Tyler, 10s.; 2d prize, No. 19,

John Plowright, 7s.; 3d prize, No. 14, Edward Osborn, 5s.—given by the Rev. Henry Neville.

Much commended, No. 1, Geo. Allett, 3s. by Lord Barham.

Commended, No. 7, Robert Hill; No. 18, Matt. Sharpe's Widow; No. 21, Thomas Starling's Widow; No. 23, William Cox; 2s. each, given by Lord Barham.

BARROW.

1st prize, No. 5, John Leeson, 10s., 5s.; 2d prize, No. 7, Edward Clarke, 7s., 3s.; 3d prize, No. 2, William Huffill, 5s., 2s.—1st sum given by the Rev. H. Neville; 2d by the Rev. J. Hinman.

Commended, No. 9, Leatherland, jun., 3s., by Lord Barham.

Under the 11th Rule, No. 1, Widow Munton; No. 4, Mary Huffill; No. 3, Henry Stubbs; No. 5, John Leeson; No. 8, Leatherland, sen.; No. 9, Leatherland, jun.; No. 10, John Freeman; 2s. each, given by Lord Barham.

Field v. Field, comparative merits, quality of the land, situation, clean and useful husbandry, general management, and number of years under the system, awarded to Riddington Old Allotments, 1s. each to all the occupiers (excepting No. 1,) given by Lord Barham.

The Ransome prize of one sovereign to the occupier of the best cultivated allotment in any of the parishes, was awarded to No. 7, Edward Russell, Riddington Old Allotments.

The cropping generally was good throughout the whole of the Allotments, and they were well cultivated.

Under all the circumstances relating to this charming work, no former year offered greater gratification. The extraordinary profit shown to be obtainable from a small portion of land is astonishing, and is mainly owing to a judicious rotation of cropping and annual examination.

—*Lincoln Chronicle.*

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I see a correspondent of yours wishes to be informed where he can be supplied with some *pure* Berkshire pigs; he is rather too late in his application, or I should have been happy to have sent him some of each sex, which, I think, would have given him satisfaction. I distributed a number this spring about two months old, which is the right age, as they can be easily packed and sent almost any distance without risk. I only now have two sows to spare, five months old, which I fear would be too large to send far.

I have exchanged the land on which I tried the the experiment with coal tar, but on looking at it this week, I see the improvement on the present crop of beans is still more conspicuous than in the wheat last year, thus proving it a lasting and good manure; but I fear the difficulty of getting a regular supply will curtail its usefulness for agricultural purposes. W. C. Johnson says in a paper he has lately written, "Mr. Bowly's experiment of applying coal tar as a manure failed because he put too much." I think he can scarcely call it a failure, as I anticipated the results; I knew it would destroy the seeds in the first instance, the experiment was to see its effects on future crops. If W. C. Johnson can inform us any way of increasing its volume, so as to render it safe to apply it in a less concentrated and liquid state it would be of great service. Believe me truly yours,

EDWARD BOWLY.

Siddington, Cirencester, July 17th.

DRUMMOND'S AGRICULTURAL MUSEUM.

In common, we believe, with the rest of our townsmen, we have long regarded with great interest, and no small degree of pride, the successful progress of our friends the Messrs. Drummond's Agricultural Museum, in this town. We find it difficult whether to admire more the enterprise and public spirit of the founders of the institution, or the intelligence and activity of the agriculturists of the district, without whose able assistance and encouragement the enlightened attempt of the Messrs. Drummond would necessarily have proved abortive. It affords, assuredly, a very decided proof of the superior intelligence of the Stirlingshire agriculturists, that not only should Stirling have taken the lead in the establishment of an institution of this kind, and that the success with which that attempt has been crowned, should have so far exceeded all reasonable expectations. Drummond's Museum was originally instituted in September, 1831. The articles exhibited consisted at first, we believe, exclusively of roots, seeds, and other agricultural products; and the period of exhibition was confined only to a few weeks. In the conclusion of the same year these gentlemen opened another agricultural exhibition on a more extensive scale. It comprised choice specimens of every important article connected with agriculture and gardening, which were accompanied with a description of the soil on which they were grown, the manure used in rearing them, and other particulars. Several fine specimens of the different kinds of grain were produced, also samples of Indian corn, potatoes, field turnip, carrot, mangel wurzel, clover, &c., and finally, a variety of the most improved implements of husbandry. This exhibition, though still only temporary (it continued, we believe, for three or four weeks,) attracted a good deal of attention in all quarters of the country, and was noticed in terms of high approval by most of the leading newspapers of the day. The exhibition was repeated in the following years with still increased success, and the attempt of the projectors having by that time attracted the notice and received the warm approbation of the most distinguished agriculturists both in Scotland and England, the Messrs. Drummond, in 1833, we believe, were encouraged to convert their temporary exhibition into a permanent one, and to devote several apartments in their warehouse to the purposes of a museum. In January, 1834, the Highland Society presented the Drummonds with their gold medal, for their spirited and valuable labours in the service of agriculture, and from that time to the present, the zeal and activity of the friends and founders of the institution have never flagged; its objects have been greatly extended, and its interest and importance continued rapidly to advance. Several reports on the museum, containing valuable communications on agricultural subjects, have been published under the auspices of the Messrs. Drummond. It will be interesting to our readers at a distance to be informed that the extent of the museum has latterly increased to such a degree that the apartments in which it was formerly contained have been found by far too small, and the Messrs. Drummond have, in the course of the present year, erected a large new building, and that the Stirling Agricultural Museum is now, in fact, one of the most prominent and elegant edifices in the burgh. It is situated in the lower part of the town, is of an oblong shape, composed of four flats, and adorned in front with a remarkably chaste and

elegant portico. The museum is principally contained in the upper part of the building, in two spacious halls, each measuring about 160 feet in length, and 21 in breadth. The eastern windows of the upper hall command an extensive prospect, comprehending the whole course of Stirling, with its beautiful boundary of the Ochils on the north, and reaching to the distant line of the Pentlands in the extreme south-east. It would be impossible, nor is it necessary, that within our present limits we should attempt to give any details of the contents of these elegant rooms. Few of our readers are unaware that the most prominent objects in the Museum are the agricultural implements (the collection of which, is probably unequalled in extent and completeness, either in this or any other country), the collection of seeds, roots, and plants, from all quarters of the globe, and models of almost every object of interest or value to the agriculturist. The collection of minerals has recently received considerable additions, and a portion of one of the large halls has been devoted to the exhibition of the various cloth manufactures (principally woollen tartans) of the neighbourhood, which, from the almost unequalled delicacy and beauty of their texture, impart a great additional attraction to the Museum. In extending their attention to the collection of such objects as those last mentioned, the Messrs. Drummond, however, appear never to have lost sight of the proper intention of the exhibition. The agricultural collection still occupies, as it ought to do, the largest and most prominent place in the Museum.

It is impossible, perhaps, to overrate the importance of a public collection of this kind. The comparatively imperfect means of intercourse and observation possessed by the agricultural population, render it an almost indispensable condition of progress or improvement in the cultivation of land. Without the means which a museum alone affords, of bringing immediately under the eye, the various inventions connected with agriculture, it appears altogether hopeless that any improved processes whatever, can ever come to be generally adopted. This, however, is too obvious to require any lengthened illustration. But in addition to persons directly engaged in agriculture, there is another class to whom Drummond's collection of implements is calculated to prove extremely beneficial. We allude to those who have any turn for mechanical invention. Among the machines in the museum, there are many which display a remarkable degree of ingenuity in their construction, and there is often in the different implements a curious variety of means for the accomplishment of similar purposes, which is admirably adapted to call forth, or give impulse to mechanical genius. We observed, for instance, on a recent visit, no less than five or six different machines, more or less cleverly constructed, for the slicing of turnips—an operation which one would not at first thought have conceived likely to call for any uncommon ingenuity or skill. This, however, is but one out of innumerable sets of implements from which many of the talented mechanics in our neighbourhood might obtain invaluable hints.

Our limits prevent us from at present adverting at greater length, to this admirable institution. We shall probably take an early opportunity of noticing a few of its more curious and interesting objects. In the meantime we shall have in some degree accomplished our purpose, if the few observations which we have presumed to offer, shall contribute in any degree to further the important objects of the Stirling Museum, or to suggest the introduction of similar institutions in other parts of the country. The benefi-

cial results which the formation of an agricultural museum in every market town in the country, would have in improving the cultivation of land, is undoubtedly quite incalculable, and it is extremely surprising that in such places as Haddington, Kelso, Dumfries, Lanark, Glasgow, Perth, and Aberdeen, no successful attempt should ever have been made to carry such an object into effect. We have much pleasure here in adverting to the spirited enterprise of Mr. Lawson, seedsman to the Highland and Agricultural Society of Scotland, in establishing a similar museum in Edinburgh, in 1833, now, we believe, merged into, and known as the museum of that Society, who have erected a spacious building for its reception, and which we may recur at a future time. We believe, from various circumstances in the character and habits of the agricultural class, that on no portion of the community, are collections of objects such as those in Messrs. Drummond's Museum, likely to produce so decidedly beneficial effects. This truth has nowhere been more distinctly proved, than in our own district, by the marked improvement which has taken place in the enterprise and intelligence of the neighbouring farmers within the last ten years—an improvement which it is impossible to attribute to any other cause than the establishment of such institutions as Drummond's Museum, and the Stirlingshire Agricultural Association—to the former, in all probability, scarcely less than to the latter.—*Stirling Observer.*

ON HORSE KEEP.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I must apologize for intruding so frequently upon your valuable columns. Although I am at variance with most of your agricultural readers, they will not, I feel convinced, withhold a little information on the keep of cart-horses, which I am much in want of. Oats are now so dear that horse keep is very expensive, and as rice is generally considered to be a much more nutritious grain, and as rice can be bought for less than a penny a pound, whilst oats cost nearly a penny farthing, it has struck me that rice might be advantageously substituted for oats. I wish, therefore, to inquire,

Firstly—Whether there be any, and what objection to substituting *boiled* rice for oats in their manger victuals?

Secondly—Whether gruel made with wheat flour be objectionable?

Thirdly—Whether boiled barley be considered advantageous food for cart horses?

Fourthly—Whether gruel made from rye-flour would be nutritious? And if not,

Lastly—Whether rye can be given them in any other form?

Thanking you for your indulgence in inserting my epistles, I remain, Sir, your most obedient servant,
Bor Common, Middlesex, July 13. W. S.

SIR,—In perusing your columns of the 27th, which as usual were filled, not with political sarcasm and useless discussions, but with useful information and practical inquiries, I observed five questions from one of your correspondents, upon the keep of cart-horses. It is quite out of my power to answer them all, but if the result of five months' trial and observation upon boiled barley be deemed worthy of a place in your paper, it is very much at your service.

The horses upon which the experiment has been made are constantly employed at heavy work upon the road, and upon an average travel 140 miles per week. Their former keep was (for four horses) four bushels beans, four bushels oats, and four cwt. bran per week. At the beginning of last March the beans and oats were discontinued, and barley substituted, of which we found they did not require more than four bushels, and that consequently (including the expense of boiling three times) it is a saving of full one pound per week. No other alteration has been made in their keep or their work, they have since been as healthy and active as they could be upon any corn, and are now in high condition.

Such are the simple facts of the case, upon which I need make no comment; we have derived much advantage from the practice ourselves, and should this statement induce any of your readers to realize the same, or be the means of eliciting any further information on the subject, it will be a source of gratification to your most obedient servant, A. S.

Bath Town Mills, July 30, 1840.

SIR,—The subject of W. S.'s letter (July 27) being more agreeable I believe to most agricultural readers than some former ones on political economy, I communicate with pleasure the result of our experience to the third query.

Our barley having unfortunately for us this last season been nearly unsaleable, it has in consequence been liberally supplied to every description of stock, the horses have had it whole, or coarsely ground, with, and without, clopped straw and chaff, also boiled until almost to the consistence of jelly; of this they are very fond, and where convenient, and fuel no object, the most economical plan: it appears to have agreed with them quite equal to oats; but where speed and endurance is required, as in hunting, it is not recommended. Rye is only known here by name; in Flanders they reckon rye-bread superior to oats for travelling horses and they mix rye-meal with their stable water.

I have at various times tried experiments with the food of horses, but they have not taken to them readily, and I have not persevered, being fearful of throwing them out of condition, well knowing, that neither horse or man can stand our work upon short commons.

A DEVONSHIRE FARMER.

South Hams, Aug. 4.

WARREN'S FARMERS' ACCOUNT BOOK.—

It must be very gratifying and encouraging to the author of this valuable Account Book, to receive continually the qualified approval of the leading agriculturists of the country, particularly at the Cambridge Meeting. The work needs only to be examined to prove that such eacommiums are due. Its methodical arrangement, its copiousness, its simplicity, render it invaluable to the farmer. By consulting it, it would almost be difficult for him to overlook any branch of his income or expenditure; there being columns arranged that would suffice for the very great variety of stock and operations in a large establishment. Above all, the farmer could, with little trouble, see at one view, his profits or his loss, at any time of the year: without such a monitor, any farmer would be pursuing a most dangerous course, and no language could be too strong in urging him as speedily as possible to keep systematic accounts. It is to be hoped that schoolmasters will prize the school edition as they should do—and by the use of it, instil right principles into the minds of farmers' sons whom they may have to instruct.

PROBUS FARMERS' CLUB.

At the last monthly meeting of this club, in consequence of the absence of the lecturer appointed for the evening, several subjects connected with agriculture were discussed by the members present, when some exceedingly interesting facts were elicited.

The use of salt as a manure was first considered. One member had tried the common fish salt, after it had been used for curing pilchards, and might thus be supposed to contain no small portion of the oil with which that fish, particularly when taken in summer, abounds. This he had applied to the extent of 30 bushels per acre, but without any beneficial effect; indeed, in some places, where it had been laid on tolerably thick, it destroyed the grass for a short time. He had also employed it as a preparative for turnips, but without perceiving either any good or ill effects from its application.—Another member had used it in preparing his land for barley; and he believes that it did considerable mischief to the crop. He had also used it for turnips to the extent of 20 bushels to the acre, mixing it with his heaps of dung, and letting it remain about a month before being carried out in the field. As it was only used on a portion of one of his fields, he had a very excellent opportunity of testing its value; and he was of opinion that it was very injurious, as his plants scarcely grew where it was employed, whilst in the other portion of his field he had an excellent crop.

The use of Lime as a Manure was then considered. A member condemned the practice of mixing lime with heaps of manure, and leaving it for a month or six weeks previously to its being used. He contended that it should be ploughed into the soil as quickly as possible, in order that its caustic qualities might act upon the vegetable matter contained therein, and thereby bring it into a state of more rapid decomposition and solution, so as to render it a proper food for plants. It was, he said, upon this circumstance that the operation of lime as a preparation for the wheat crop depended, as well as its efficiency in fertilizing peats, and in bringing into cultivation all soils abounding in hard roots, or dry fibres, or any sort of inert vegetable matter.—In opposition to this opinion, a member asserted that he had for many years been in the habit of mixing lime with his dung, and so leaving it for a week or fortnight previously to its application. He had always found this practice to succeed well, and he mentioned two or three parishes in particular where it was invariably followed. He was of opinion, that, however quickly the lime might be used, it remained but for a very short time in a caustic state, at least to such a degree as to produce any great effect upon the soil; and it was not in this condition that it produced any beneficial effect, but rather in its original carbonaceous comminuted state. It had very frequently been observed, that the first year after lime was applied to the soil, its effects were inconsiderable in comparison of those which it produced in the second and succeeding years.

This interesting question was considered at some length, but as it will come before the society again at the next meeting in September, in a lecture on chemistry as connected with agriculture, we refrain from entering any further into it at present.

After this, a very interesting conversation took place on the comparative merits of the various *Artificial Manures* which have been lately employed, particularly for turnips. It appears that

several of the farmers in Probus and the adjoining parishes have put the efficacy of these different manures to the test, by instituting experiments with malt-screenings, wood-ashes, nitrate of soda, bone-dust, and Lance's granulated manures, drilling them in with the turnip seed, side by side in the same field; and the result is, that Lance's carbonized humus has taken the lead of all the others, having given a most extraordinary stimulus to the young plants, thereby getting them quickly on to that state in which it is found that they are free from the ravages of the wire-worm, and the other destructive insects which prey upon them. On the value and importance of the turnip crop to the farmer, it is unnecessary to expatiate, as it not only enables him to supply our markets with an abundant store of fresh and wholesome provisions during the winter, instead of the salted food upon which our ancestors had, at that season, principally to depend; but also, that, while it supersedes the necessity of fallowing, it imparts to the land a degree of fertility which insures, under proper management, a succession of crops afterwards. It may indeed be called the "sheet-anchor" of light soil cultivation, and the base of the alternate system of husbandry, to which every class of the community is so much indebted. It is only by experiments such as these, instituted by practical men, upon large breadths of land devoted specially to the purpose, that the value of the different manures can be ascertained.—The bone manure was pronounced to be the next in order, and, though it came something behind its rival in the effects produced by one experiment, it was generally believed that its strong enduring powers would come into active operation in due time, and that even before the end of harvest it would attain perhaps the first place. The value of the nitrate of soda, could not for the present be ascertained, as it had been applied about three weeks later than the others; but we hope to give some account of its progress in our report of the next meeting. The wood ashes came next to the bone-dust; and the malt screenings last of all.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—It is to be regretted that when animals, extraordinary in any particular, are mentioned in your paper, that the *breed* is not at the same time named. This is the case with regard to the 18lb. of butter a week cow, and the 59lbs. per quarter ewe, mentioned in your last number. I have frequently noticed and regretted this omission. It would be much more satisfactory to readers, if writers would be particular in this respect. I am, Sir, your most obedient servant,

P. C.

SIR,—For the satisfaction of your correspondent P. C., of last week, I beg to state that my ewe, which was 59lbs. per qr., (after being ill a long time) was bred from tups hired of Mr. Smith, of Charlbury, Oxfordshire, without a cross for more than thirty years.

I must also say, that if Mr. Smith, as leader, takes the right road, it is easy for those that breed from to follow.—Yours respectfully,

THOS. CARPENTER.

Hull Farm, Chipping Norton, Oxfordshire.

ON FOOT-ROT IN SHEEP.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In your valuable paper of this week, to which I am a constant subscriber, is a nostrum for the *foot-rot* in sheep; now Sir, instead of going to the *chemist's shop* for ingredients, just go to the lime kiln for its cure.

First prepare a coop or stall, under cover, with dry sod, or other hard and even bottom; get stone lime fresh from the kiln, slake it and strew it in the stall in its powdered state, to the depth that a sheep's hough may be well immersed in it when standing; then take your foot-rot sheep, and pare the foot in the usual way; when done, put the sheep standing into the powdered lime, it will adhere to the bloody and raw foot, it will eat up all the bad flesh, and in a few times repeating complete a cure.

After they have stood an hour each time of paring they may be put into a plot where it is dry footing.

If you think this simple and cheap way of curing the foot-rot will be acceptable to your readers, you may do much good by inserting it in your useful columns.

I have thirty years experience and always found it complete a cure.

A CONSTANT READER AND SUSSEX
AGRICULTURIST.

P.S. After the lime is done with for the sheep, it will be good for manure; and another advantage, the lime is sure to adhere to the diseased part of the foot.

SIR,—In noticing the letter signed M. O. in the M. L. F. of the 27th inst., whose residence I know not, I beg to observe the agricultural public ought to be much obliged to any individual who will trouble himself to communicate that which he has found beneficial, and which he considers may be useful to farmers generally. I have frequently observed, that in giving recipes, they are given so inaccurately that they cannot be made up correctly even by skillful druggists, much less so by persons not at all skilled in the knowledge of medicine; hence so many failures from what have been considered *capital* receipts.

I am induced to make these observations in consequence of reading M. O.'s receipt for the *Foot-Rot* in your last week's paper. I agree with him, "Let your druggist make up the receipt," recollecting the farmer's favourite motto, "Live and let live." Now for the recipe: M. O. says, first take verdigris and alum, then *white mercury*. I ask, what is meant by "white mercury?" Then "vitriol;" again I ask, which "vitriol?" as there are vitriols of various hues, blue, white, and green, besides the oil of vitriol and spirits of the same; these explained will make his recipe intelligible, and I dare say a very good one. He directs to apply it with a piece of wood a little *hards* at the end; it is easy to imagine the "printer's devil" erred by putting an *stoo* much, and suppose he means the wood should be a little *hard* to apply the mixture to the foot with, many persons not being aware that by *hards* he means *tow*; in this locality *hards* is understood to mean *alum* as well as *tow*—hence mistakes are likely to occur. The public will be obliged to M. O. to amend his recipe, that it may become generally useful.

The Guinea Grain Wheat I know nothing of. Brown's Ten Rowed—I am this day carting it—looks well, and is heavy; and if M. O. will give me his address I will communicate to him the produce of 3½ acres which I shall soon thrash out.

Aug. 21, 1840.

ABRM. GALL,
Beyton, Bury St. Edmunds.

ON BREEDING IN-AND-IN,
DRAINING MOSS, &c., &c.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Will any of your talented correspondents inform me how the term, in-and-in, is applied, and in fact what is the meaning of it in breeding stock, as we on this side of the Channel know nothing of the term as applied?

In answer to your correspondent, relative to draining moss, with timber applied as soles for tiles where the moss is so soft that the slates sink unevenly in the bottom of the drain. I use larch fir cut into three-quarter inch boards as soles for tiles, but where the board is long and the moss very soft, I drive a small pile down in the centre of the drain, and lay a three-quarter inch board across the top of the pile, and nail it down to the pile; these I place every fourteen feet, or oftener, if the moss is very soft. Larch-fir I find stands longer in the ground than any other kind, and where the fall is not good the boards should be planed on the upper side, where the small particles of land or earth may not find any hold, or the least they may have may check the drains in a few years. If you think the remark worth while use it; if not, do not exclude more valuable matter from the columns of your valuable journal. I am, sir, yours,
Youghal, July 7. AN IRISHMAN.

ON UNDER-DRAINING.

SIR,—Seeing in your paper of the 27th a letter from a farmer north of the Tweed, relative to a difficulty he experiences in underdraining, I would recommend him to drive some small piles under the boards for them to rest on; and instead of tiles I should say make the whole drain with boards in the form of a triangle, which I think he will find, if made of alder or willow, will not cost him much more than 6d. per rod, and probably save him a long carriage for the tiles; and besides by using boards as long as he can get them, he will have less joints for the loose earth to run in; and I should also recommend him to have small gratings, such as the pieces of an old iron sieve, &c., to prevent rats getting in. Trusting this will in some measure meet the difficulties he encounters, I am, &c.,

NATIVE OF EAST KENT.

Sunday, July 19, 1840.

DRAINING MOSS LAND.

SIR,—If the writer of a letter, (which appeared in your *Express* of June 29), signed "A Farmer north of the Tweed," is wishing to have a practical illustration of the best system of draining moss land, I would earnestly recommend him to inspect parts of Chat Moss, near Manchester, which are now under cultivation, particularly the now reclaimed farms of Edward Baines, Esq., M.P., the Messrs. Evans and Co., and Thomsons; also it would be worth your correspondent's time, if he has a large tract of moss to cultivate, to inspect the drainage and other improvements now proceeding on White Moss, near Manchester, and not more than four miles from the town; the crops now growing on White Moss are the first ever attempted to be grown there, and both turnips and oats are looking inferior to no others I ever saw in the United Kingdom.

Should your correspondent take the advice here offered, and will direct a few lines for me, to be left at Ladyman's Hotel, Manchester, I should feel great pleasure in accompanying him to the different places named, as it might very well be done in one long day.

I am, Sir, yours respectfully,

A LANCASHIRE AGRICULTURIST, NEAR MANCHESTER.

REVIEWS.

THE READY RECKONER FOR WHEAT, BARLEY, AND OATS.

BY ROBERT WILLS, INSPECTOR OF CORN RETURNS,
CHICHESTER.

Hackman, Chichester, 1838.

It has seldom fallen in our way to notice a more useful publication than the above, or to see any work put forth in a manner so very unpretending, and free from ostentation. The author states neither the labour which the compilation has cost him, nor the praises and success he anticipates as being due to his exertions; he does not even recommend his work to the persons for whose use it is intended, nor calls for any reward but what the merit of the book may deserve. The title-page shows the contents of the matter, with the name and occupation of the author, and without a single observation of any kind, he leaves the work to sink or swim by its own merit, and in this respect it may serve as a model of title-pages and prefaces, the latter being most generally nothing more than a pompous oration of vanity and conceit, and of fulsome flattery well known to be false by the person who utters it. The neat little work contains the prices of wheat at the rate of 10*l.* 2*s.* 6*d.* to 20*l.* per load of five qrs., in quantity from four bushels to forty qrs.; the price increases by 2*s.* 6*d.* a load, and the quantity by four bushels until it exceeds twenty-five qrs., and then by one qr. to forty which terminates each calculation of a certain price. The prices of barley and oats are calculated from 15*s.* to 40*s.* a qr., and in quantity from 1 to 30 qrs. To farmers who have much grain to sell, to corn-factors, and to all persons who are engaged in business where the measures are used, the book is particularly adapted; the neat size and small bulk may be carried in a side pocket, so that in the counting-house and in the market, the usefulness is equal. The modesty of the author much enhances its merit.

"ILLUSTRATIONS OF THE BREED OF DOMESTIC ANIMALS OF THE BRITISH ISLANDS."—By DAVID LOW, Esq., Professor of Agriculture at Edinburgh, &c., &c.

The fourth part of this work has just appeared, containing the "Ox," and commences with the general history of the ox family, which is divided into three groups—the Bisonine, the Bubaline, and the Taurine. The European bison is now confined in small numbers to the forests of Sarmatia, where the remnant is specially protected by the Russian government, and a few are occasionally seen in the woods of the Caucasus, whence they extend to British India. The American bison forms numerous herds in the temperate regions of the northern continent, and are killed for the hides and flesh, and appear capable of being tamed and applied to domestic purposes. The musk ox abounds in a more northern latitude. The "bos grunniens" of the Tartars is placed in this group. Of the species of buffalo, the common kind abounds most in India, and is spread over Asia, and in many places in southern Europe, and a smaller species is found in Africa. The Taurine group is numerous, and comprehends the domesticated ox, with the various species. The author has given a very neat and concise history of the three groups; the size, habits, appearance, and character of the different animals; the dangerous encounters with them in the wild state, and the likelihood that exists

of their being tamed, and mixed by propagation with other breeds. Much research is displayed in collecting the materials; the account of the wild herds in Brazil is particularly interesting, and also of the African and Cape ox.

The plates of our native breeds are a Zetland cow, and one of the Kerry breed, very small animals, but much adapted to the situation; a bull of the Polled Angus breed, a valuable kind of animal, but much confined in extent, and apparently wearing out; and a bull and heifer of the Galloway breed, one of the most useful in this kingdom. Each plate is accompanied with an appropriate description, containing the peculiar habits of the animal, with the author's observations on their respective merits, the success of crosses, and the probability that exists of future improvement by crossing, or by breeding from the individual species. We could have wished something more had been said on the subject of the Galloway cattle, being the maternal origin of the short-horns, and possessing, with some trifling exceptions, the most complete carcass for the butcher that any breed can afford. The deep chest, round carcass, flat shoulder, and level back, short legs, and general symmetry, are not seen so much combined in any other animal. The rib, as the author observes, or back cut, is well known in Smithfield, and the meat brings a higher price, along with all Scotch cattle of that symmetry and size, a fact known to any butcher's boy, though it lately required a prize essay of ten pounds to tell us the contrary, in opposition to all experience. A coarseness attaches to the head, neck, and skin of the Galloway, which has been much removed by the eminent breeders mentioned by the author. We have much pleasure in bearing testimony to the increasing merits of this work, containing both ancient, modern, and practical information, for the collection and publication of which the author and publishers are equally entitled to our gratitude.

JONES AND HAN'S PATENT FOR AN IMPROVED PROCESS OF MANUFACTURING CIDER AND PERRY.—The manufacture of *sweet* cider and perry is an *art*—the mere act of grinding and expressing the juice from the apple or pear, and then putting it into casks, leaving Nature to finish the operation, has no title to be dignified by that term. In the latter case the delightful acido-saccharine juice is converted by the unchecked process of fermentation into an acrid, thin, austere liquor, which no one would touch but those accustomed to it, and it is only marketable among the labouring part of the community, fetching the lowest price, whilst the manufactured article is in fact a *wine*, and as such bears a proportionately higher value. In making use of this term "manufactured," we must not be understood to imply that any foreign or chemical ingredients whatever are introduced into the liquor, and if that is ever done, the patent which we are now about to describe in as few words as possible, is intended to accomplish the effect of keeping the sweets in the cider or perry by no other method than by a rapid process of filtration. The greater tendency of the juice of the apple or pear to run through the whole process of fermentation, above that of the grape in the southern parts of Europe, arises from an excessive quantity of a *ferment* imprisoned in the fruit, in proportion to the quantity of pure sugar in the juice, and a considerable portion of this *ferment* must be separated before its action becomes too violent. The mode of accomplishing this by the patentees is by double bags compressed into so small a space, and yet exposing a great filtering surface, that 120 of them will not occupy a space of more than four feet square. The mouths of these bags are fastened in their places by hollow plugs, which are easily removed, so that the bags can be taken out and replaced

with great rapidity when they become choked by the process of filtration; but this process would not be effectual without the use of an article which arrests all the floating feculencies that occasion the fretting and hissing, and yet adds neither taste or smell to the liquor passing through it, and this is merely well burnt and pure wood charcoal pulverized. The patent also includes a mill for grinding the fruit, different from anything hitherto in use either in Devonshire or Herefordshire. It is a roller converted into a rasp, by tools supplied with it, so that it can always be restored to its original roughness by any common labourer, when by use it is worn too smooth. We have ourselves tasted cider manufactured by this process, and can truly say that never before have we met with cider of so rich a body, so fine a flavour, and withal so rich and clear.—*Mechanic's Magazine.*

CALENDAR OF HORTICULTURE.

SEPTEMBER.

The directions which are given in periodicals, are too general; they remind me of those naturalists' calendars which mention the return and songs of birds, at certain dates and periods. All nature is subject to contingencies, and all directions must be received with some caution, and allowance for variations of latitude, climate, and exposure. In writing for the vicinity of London, we may be definite, but a kalendar which is to be read in Scotland or Ireland, as well as in Kent or Devonshire, must be subject to corrections. Perhaps Mr. Loudon's rule is as little exceptional as any that we can refer to:—it is the following.

"In general, other circumstances being alike, four days may be allowed for every degree, or every seventy miles north or south of London; in spring, operations may be commenced earlier in that proportion southward," (because it is presumed that the temperature is there more genial) "and later northwards" (obviously for the contrary reason). "But in the autumn the reverse, and operations deferred as we advance southward, and accelerated as we proceed to the north. In every case allowing a due weight to local circumstances."

Sufficiently contingent is all this, yet it may excupate a writer for any error he may commit which has its origin solely in difference of locality, and whose correction must depend upon the experience of the reader.

September, is the season, wherein every good gardener has it in his power to bring his ground into that condition of neatness and repose, which is so peculiarly grateful to the eye of many persons of excellent judgment. Vegetation has lost its active stimulus, yet it has not declined into complete torpor. Many crops have ceased to produce, others have ripened their seeds, and both should be removed to the manure or compost ground; after which every vacant spot should be dug or trenched, and if the land be of a stiff and binding texture, laid up in ridges.

Weeds grow with great rapidity at this season, for the sun retains much power, dews are strong, and in general a good deal of rain falls; therefore every opportunity should be seized to eradicate them by hand, hoe, and rake.

The summer sown cabbages will be advancing rapidly, therefore the ground should be kept quite clean, and its surface rather open.

Cape broccoli is coming into bearing, and as the white butterfly (*Pontia Brassicae*) is apt to make it foul with its numerous caterpillars, the plants

ought to be carefully examined, and the nuisance removed as soon as seen, otherwise this delicious vegetable will be injured in flavour and quality. The stalks and leaves of every plant, as soon as the head is cut, should be removed, and the ground made clean.

The spring succession broccoli, it is usual to remove, laying the plants down with the heads to the north against a sloping bank of earth, and covering the stems on the south side with mould nearly as high as the lowest leaves; this is a measure of precaution which we deprecate, though it appears to have been sanctioned by the late Mr. Knight. The roots are thereby disturbed, at a period when growth becomes torpid, whereas if the plants have been placed in a trench, the earth that lies in the ridges on each side, can be readily shovelled into the trench, and will thus protect the stems, without occasioning any disturbance of the fibres. The surface of the ground between the rows can then be cleaned and digged, which will give the plot a neat appearance.

Broccoli plants may yet be planted out from the seed, or nursery-beds.

Carrots sown in August, are to be weeded and thinned; a little more seed may be sown early in the month.

Cauliflower plants are pricked out at the close of the month, and protected under frames or glasses. Some persons place a few in small pots, and plunge them in a frame.

Cabbage plants should have the first remove at the commencement of the month; they gain strength and a stocky root, by placing them in a nursery bed of mellow unmanured loam.

Celery plants in the trenches, should be regularly moulded up; the earth ought to be chopped down from the edges when in a friable state, and made very fine. The plants should be confined by one hand, or by passing a string round them, while the fine earth is placed around each.

Endive may be transplanted two or three times.

Lettuces can be planted out; others placed in frames; and seed of the hardier cos sown twice in cold frames. Young lettuces now transplanted are greedily devoured by slugs; not only should the ground be strewn with air-slaked lime at night when the vermin is exposed, but slices of turnips ought to be laid along the rows as baits.

Mushroom beds may now be successfully made.

Welsh onions can still be sown to stand the winter.

Potatoes are suffering severely in many southern counties, from the long protracted drought, and as the herbage of the medium varieties was dying away early in August, and the tubers themselves became dead ripe, small, and very hard in texture, the rains must excite a secondary growth; it will therefore be prudent to dig such directly. Seed tubers must be very indifferent, and if Mr. Aitken's theory be correct, we shall have poor success next year, from sowing the over-matured potatoes of this dry season. We ought to raise fresh seedlings. These are generally more juicy than old store, and at this time a plantation of the second year from the seed, retains all its verdure, and is in full flower and fruit, while plants of the parent store are actually dried up, with every vestige of green completely destroyed: an example of this is before us.

FRUIT DEPARTMENT.

The currant and gooseberry bushes have been terribly infested by three broods of the caterpillar of saw-fly; (*larva of tenthrède*) hand picking has

been tried, and with some success; but in addition, (in order to destroy those, whose chrysalises may otherwise remain under ground, for the achievements of another year), we would recommend the trial of the following application, the receipt for which has just met our eye. "Boil some foxglove plants in an old copper, and water the trees overhead with the liquor through the nose of a watering pot. The effects will be instantaneous, and in a great measure it will prevent their appearance the following year."

This may, or may not be correct, but infusion of fox-glove is a poison; powdered hellebore is also recommended, and that is a still more active poison; nothing of the kind therefore is to be tried while fruit remains on the trees, but after it is gathered, experiments of the kind are perfectly justifiable.

Strawberries of every kind may be planted to the greatest advantage in September; the chief sorts are, 1st. *Keen's seedling*, for prolificity and early bearing, also for forcing in pots. 2. The old, or *Carolina pine*, for high and superior flavour. 3. The *large white*, later, and also of peculiar and milky flavour. 4. *Knight's Elton*. The last comes into season when all the others are gone, and it possesses a delicious acidity. In making the beds, trench the ground two feet deep, and enrich it as for asparagus, particularly at bottom; let the loam at top be light and mellow, not very rich with manure; and plant the finest and best rooted runners of the season in rows, either single along the borders, or in beds two feet apart; the plants may stand from six to nine inches asunder; then water freely. Keen approves of fresh dung for manuring the land, in preference to spit-dung.

For *old plantations*, Keen says that he always finds that to dig between the rows in autumn, "refreshes the plants materially."

If *raspberry plants* have not been cleared from old wood, and all that is superfluous of the new, these regulations should not be longer neglected.

Gather fruit as it ripens. It will not be amiss to cut away all the wood that has borne peaches and nectarines; clear back to the lowest shoots, that were selected at the *spring regulation for successional bearers*. Those shoots will ripen their wood more perfectly, if the sun and air have the freest access to them. After this dig the borders lightly, and leave them in the neatest order.

The *forcing departments* require much attention. *Pines* are in full bearing, and *successions* grow rapidly. The best soil for re-potting is a mixture of two parts mellow, friable, turfy loam, mixed up about a month before it is used with one-third of deer's dung, collected by the hand from the park, and laid in a heap to heat and break up for a few weeks. Sheep manure treated in the same way is next to it in value.

Vines under glass, the crop of which is gathered, should be more and more inured to air, but we believe that there is no necessity to remove the lights or withdraw the rods. Many gardeners keep plants all the winter in vineries, which would perish if fully exposed, yet the vines do well, and bear abundant crops yearly. Facts are more to the purpose than assertions, and, with the vine, habit is almost every thing.

FLOWER GARDEN.

Annual flower seeds, as of *clarkias*, *collinsia*, *schizanthus*, *mignonette*, *petunia*, and indeed of most of the same hardy plants, may be sown in

pots. These can be preserved in a warm and dry greenhouse all winter, but if in damp situations, all must perish.

Carnation and *pink layers*, and pipings of the latter, if well rooted, may be potted off, or placed in parterre where they are to flower. All the *dianthus* tribe like chalk, and a little of any calcareous substance, finely powdered, should be blended with the soil.

Chinese Chrysanthemums, if re-potted, will require the soil to be very rich, to bring them forward as rapidly as possible. *Verbenas* of several kinds should be potted; they furnish runners that root at every joint, if pegged down either in the soil, or into small pots of sandy loam.

Slips of *petunias*, *salvias*, *calceotarias*, of the shrubby varieties, &c., inserted in sandy earth, in a frame, will root freely, and may, by a little covering in cold weather, be safely preserved during winter. The horse shoe pelargonium can also be raised by slips placed in a pot of sandy earth, but this and the variegated scarlet and pink-flowered must be kept in a dry house.

DAHLIAS will be in perfection, we say nothing of this flower, except to caution any amateur against the vain attempt to produce a real blue flower by chemical agents; if such could act, it would only be upon the tubers through the medium of the soil, not at all upon the seeds. Therefore, if a blue could be obtained once, to insure perpetuity, even by cuttings, the same staple soil and the same agent, both identical to the utmost degree of minuteness, must be employed; and as this would be utterly impossible, no reliance whatever could be placed upon plants, for which, perhaps, an enormous price would be asked.

Dahlias are beautifully and effectively displayed against an open trellis.

Greenhouse plants that have been in the open ground must be taken up soon after the middle of September, and planted in pots of appropriate soil. They must be moderately watered, and placed in a close frame or house, till they make some fresh roots, and then have air allowed in gradually increased quantity. A little timely thought and precaution will render a plant handsome through the winter, which, if treated hastily, would lose its foliage and become a deformity.

Young geraniums raised from cuttings may be fully rooted; pot such off into small pots of leaf mould or heath soils, and reduced turfy loam. The old stock plants which have furnished the cuttings will have shown fresh signs of growth; then, and not till then, however small the developments, they should be turned out of the pots, and the old soil carefully removed, leaving as much about the centre as will suffice to preserve the new-made roots. The old wandering roots should then be pruned away, and the plants placed in much smaller pots of loam, with one-third of good leaf-mould.

The rationale of this process is, to preserve the life of the plant without stimulating it, and to induce it to produce abundance of fibres, which in the spring, when placed in richer soil, will promote a fine head furnished with large and rich foliage. During the torpid season a poor loamy soil tends to preserve the plant from dampness and decay, for it is not subject to that decomposition which all manuring substances are. Decayed turf and the earth produced from couch-grass roots, furnish the best loam for greenhouse plants.

EAST-RIDING (YORKSHIRE) AGRICULTURAL SOCIETY.

On Wednesday, the 29th July last, the annual show of cattle of this Association was held at Beverley, in two fields on the York road, belonging to Mr. Skelton, of the Rose and Crown—the usual place of meeting.

It was announced that the show fields would be ready for the inspection of non-members at 12 o'clock, on payment of 2s. each.

Inside the gate the fields were admirably laid out for the purposes of a shew, and were amply provided with pens and paddocks for the sheep and cattle, besides a kind of platform raised some distance from the ground, which overlooked the stock exhibited, for the use of the spectators. There was a fence all round the enclosure for the animals, for the purpose of excluding all intruders, so that the most perfect order and regularity were maintained throughout. The excellent secretary of the association, Mr. J. Boyes, was on the ground all day, and performed his part of the day's business to the satisfaction of every one. The shew altogether was an excellent one—and such as is calculated to add to the many laurels which the skilful and industrious farmers of the East-Riding have already obtained. The exhibition of horses and sheep was the subject of general admiration—particularly that of the former. There were four yearling colts by Revolution exhibited, which were much admired for their symmetry and colour. Six colt foals and two fillies by Mercury were also shown and attracted crowds of admirers. We observed three or four very fine unbroke stallion colts, a variety of yearling coaching geldings, and several coaching and hunting colts, three years old. In the extra stock Mr. Wm. Laybourn, Huggate, exhibited a beautiful chestnut stallion colt, by Fire-away, dam by Richmond, foaled May 14, 1839. This noble animal, impatient of restraint, stamped and pranced upon the ground at times, during which his beautiful figure was seen to great advantage. There was a superior brown yearling stallion exhibited by Mr. Hardie, of Seaton. Here also we found an excellent horse belonging to Mr. Moor, of Burn-butts, it is five years old, is a dark chestnut by Graysales, and is fitted to be either a hackney or a roadster. One very beautiful and powerful grey cart horse was shewn by Mr. Johnston, of Frodingham-bridge—it is seven years old. Mr. Jordison, of Lockington, exhibited a well-proportioned four years old horse by Napoleon-le-Grand. A very pretty bay mare four years old, by Belshazzar, was shown by Mr. Swaddle, of Killingraves. In a pen among the extra stock were exhibited several superior pure-bred Leicester sheep, which are to be sold soon by Mr. Campbell, and which are the property of Mr. Edwards, of Market Weighton. The selection of cart mares was good, as also that of mares for agricultural purposes. No less than thirteen road mares were exhibited. There was also a variety of roadster mares with foal, hunting mares, and coaching mares. The shew of rams and ewes attracted notice, and was much admired. The exhibition of bulls was good. The oxen exhibited were few in number, but of great size and fine stature. The pigs were not reckoned so superior, but one or two of those exhibited were highly approved of. The shew of implements was not so large, we think, as it was last year, but several very interesting agricultural machines were upon

the ground. Mr. Croskill, of Beverley, as usual, exhibited several, and carried off a prize. Mr. Robinson, Halsham, exhibited a new machine for dressing corn; Mr. John Robinson, of Brandes-burton, sole inventor, showed two or three horse thrashing machines; one of them will thrash from fifteen to twenty-five qrs. of wheat per day, and from twenty-five to fifty qrs. of oats per day. The last-mentioned machine has been extensively patronised by gentlemen who have found it to work well. Messrs. Gardners, of Banbury, exhibited a patent turnip cutting machine, also several improved thrashing machines. Mr. Dale, of Bridlington, showed a curious machine for blowing corn after it is dressed. A new dressing machine was exhibited by Mr. John Dry, corn dressing machine maker, Market Place, Beverley. Mr. Dry has invented this machine on a principle far superior to the old system, being more durable, simple in its construction, and less liable to get out of repair. It is no larger than the common dressing machine, but so constructed as to allow the riddles to be one foot six inches long, by two feet wide. This machine works at a more rapid rate than any machine heretofore invented. It has been tried by Mr. Hotham, of Lund, who highly recommends it.

THE JUDGES.

The names of the gentlemen who performed the difficult duties of judges on this interesting occasion are:—

FOR HORSES:—

Thomas Brooks, Esq., Crosby, Calstow; John Thistlewood, Esq., Lambcroft, Louth; Richard Nainby, Esq., Barneby-le-Beck, Grimsby.

FOR CATTLE AND PIGS:—

William Torr, Jun. Esq., Riby, Grimsby; Thos. Crofton, Esq., Holywell, Durham; Philip Skipworth, Esq., Aylesby, Grimsby.

FOR SHEEP:—

John Rob, Esq., Thorpe Fields, Thirsk; Thos. Short, Esq., Martin, Bawtry; William Henlock, Esq., Green Hamerton, Boro' Bridge.

We understand that 281 members were admitted into the shew ground, whose subscriptions amounted to 141.1s.; and that 1948 non-members were admitted by which was realized the handsome sum of 194.6s.; total, 208l.7s.; No. of persons admitted into the fields, 2224.

By about three o'clock the judges had finished their important duties; at a quarter to four, the door leading to

THE DINING HALL

was thrown open and the company admitted. At a little after four o'clock the chair was taken by Lord Hotham, (an admirable chairman) who was supported on the right by Mr. Crofton, Mr. Skipworth, Mr. Torr, Mr. Turton, &c., and on the left by Sir Thomas Legard, the Mayor of Beverley, Capt. Hotham, &c., &c. The vice-chair was occupied by J. — Pease, Esq., in the absence of the Vice-President of the association. Grace was said and thanks returned by the Rev. S. Creyke. About 700 gentlemen sat down to dinner. The cloth having been removed the toasts were proceeded with.

The following toasts were first given:—

"The Queen," three times three. (National anthem.)

"Prince Albert," three times three.

"The Queen Dowager and the rest of the Royal Family," three times three. (Auld Lang Syne.)

The VICE PRESIDENT (Mr. Pease) proposed the health of the Archbishop and the Clergy of the diocese.

"The Archbishop and the Clergy of the diocese," three times three.

Rev. S. CREYKE returned thanks.

"The Army and Navy," three times three.

Mr. CARTER, R.N., returned thanks for the navy. Major HALLON returned thanks.

The CHAIRMAN—Gentlemen, it now becomes necessary for me to request your attention and your patience for a short time while I will call upon the Secretary to announce to you the list of awards which have been made to the labourers, &c., and after that the list of prizes which have been awarded to the different competitors at the shew held this day—and then read to you the report of the committee of the association (Applause.)

The following is a list of the Premiums and Sweepstakes:—

Labourers in Husbandry.

Foster, Charles, Bainton, 10 children, first premium.....	£ 4
Jessop, William, Meaux, 10 children, second premium.....	2

Servants in Husbandry. (Single Men.)

Gray, William, Skidby, 31 years, in three services, first premium.....	3
Frier, Matthew, Bielby, 28 years with Mr. Fentiman, Bielby, second premium.....	2

Female Servants in Farming Service, not living as Housekeepers.

Bointon, Margaret, Beverley Parks, 17 years in two services, first premium.....	2
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Labourers in Husbandry who have worked the longest time upon one or more farms, &c.

Needham, Joseph, Hatfield, 46 years, 8 months, Mr. Tanton, first premium.....	3
Wiles, William, North Dalton, 44 years, one farm, belonging to Mr. Dowker, second premium.....	1
Lamb, William, Kirby Grindalythe, 37 years on the farm occupied by Mr. Walker.....	5s.
Thurlow, Robert, Aike, 39 years, Mr. Robinson, Lockington Carr.....	5s.
Wood, Thomas, Eastburn, 33 years, Mr. Boyes, Eastburn.....	5s.
Newby, Stephen, Gardham, 39 years, Mr. Lee. Botham, John, Tibthorpe, 34 years on the farm occupied by Mr. Piercy.....	5s.
Jessop, William, Meaux, 32 years, with Mr. Wise, Meaux.....	5s.

The Committee awarded 5s. each to those labourers who have worked above 30 years on one or more farms.

Labourers in Husbandry not occupying more than two acres of land, &c. (Given by W. D. T. Dersberry, Esq.)

Nicholson, John, Ganstead, 11 children, (no relief,) first premium.....	3
Stephenson, William, Preston, 16 children, 8 arrived at manhood, received about 4l. in parish relief, second premium.....	2

Shepherds, (annual servants.)

For rearing lambs from a flock exceeding 200 ewes. In this class the first prize of 3l. was awarded to John Wood, Mr. G Simpson, Hunmanby Field, who had 237 ewes, from which he had on the 1st of June, 373 lambs, no ewes lost. The second premium of 1l. was adjudged to William

Roe, Mr. J. Beal, Kilnwick Percy, who had 341 ewes, from which on the 1st of June, he had 418 lambs, no ewes lost.

Shepherds, (annual servants.)

For rearing lambs from a flock exceeding 100 and not exceeding 200 ewes. The first prize of 2l. was given to David Goodhill, Mr. Thomas Sample, Bishop Burton, who had 139 ewes, from which on the 1st of June, he had 216 lambs, no ewes lost. The second prize of 1l. was adjudged to Jonathan Harrison, Mr. Johnson, Riplingham Grange, who had 157 ewes, from which, on June 1st he had 219 lambs, two ewes died.

Shepherds or other persons.

For rearing lambs from a flock of 100, and not exceeding 150 ewes. The first prize of 2l. in this class was given to William Taylor, Mr. Thomas Harrison, Leven, who had 125 ewes, from which on 1st June, he had 224 lambs. The second of 1l. was adjudged to Robert Nettleton, Mr. John Harland, Barmston, who had 100 ewes, from which on the 1st of June, he had 173 lambs.

Shepherds, or other persons.

For rearing lambs from a flock exceeding 40 and not exceeding 100 ewes. In this class the first premium of 2l. was adjudged to William Brown, Mr. Richard Chapman, Brandesburton, who had 65 ewes, from which, on 1st June, he had 122 lambs. The second prize of 1l. was given to Thomas Hopper, Wetwang, who had 56 ewes, from which, on 1st June, he had 95 lambs.

Shepherds for service.

Lakes, Matthew, Mr. Champney, Halsam, 38 years and 8 months, on the farm occupied by Mr. Champney, equal with next.....	2
Reaston Richard, 38 years and 8 months with Mr. John Simpson, Hunmanby.....	2

Bulls of any age, from any part of the Kingdom. Cup given by H. Broadley, Esq., M. P.: value 10l.

Botterill, Mr. John, Easthorpe (11 competitors). Cup

Bulls not exceeding 30 months of age.

Bell, Mr. Beverley Parks, (6 competitors)... 7

Yearling Bulls.

Gofton, Mr. T., Thirleby, (6 competitors)... 3

Yearling Bulls, (given by Mr. R. Iveson, Nuthill, near Hedon.)

Swaddle, Mr. John, Killinggraves, (3 competitors)... 3

Fat Beast, bred in the district.

Collins Mr., Dantborpe, (2 competitors.) 3

Two Steers bred by the Exhibitor, between one and two years old, 3l.—No competition.

Cows of any age in milk or calf.

Thompson, Mr. James, Beverley, (14 competitors)... 4

A cow exhibited by Mr. Simeon Webster was very good, and the judges had great difficulty in coming to a decision which animal was entitled to the prize.

Heifers in calf, above two and under three years old. Swaddle, Mr. John, Killinggraves, (no competition)... 3

Heifers in calf, above two and under three years old, bred by and bona fide the property of the shower.

Moore, Mr. Ralph, Brandesburton, first premium..... 3

Do., Do., second premium..... 1

Mr. Swaddle having got the prize in the last class could not compete in this class.

<i>Pair of Heifers, under two years old, bred by the Exhibitor.</i>		£
Watson, Mr. Charles, Seaton Ross, first premium.....	2	
Mathison Mr., Beverley Parks, second premium, (4 competitors).....	1	
<i>Five Tups for farming purposes, sole property of the Exhibitor.</i>		
Borton, Mr. John, Habton, near Malton, (6 competitors).....	12	
<i>Five shearling Tups.</i>		
Leighton, Mr. George, Osgodby, (3 competitors).....	7	
Mr. Borton was not eligible in this class, having obtained the prize in the last class.		
<i>Twenty Wether Shearlings. Silver Cup, given by Lord Hotham, M.P., value 10l. 10s., with a Sweepstakes of 1l. each. Second best 5l. Third, (given by Mr. George Piercy, of Kirkburn), 3l.</i>		
Foster, Mr. John, Southburn, first premium. Cup and Sweepstakes.		
Almack, Mr. Thomas, Bishop Burton, second premium	5	
Jackson, Mr. Thomas, Routh, third premium, (7 competitors—14 entries).....	3	
<i>Five Shearling Gimmers. Silver Cup, given by James Walker, Esq., of Sand Hutton, value 10l. 10s., with a Sweepstakes of 1l. each, for the best Pen. Second 5l.</i>		
Hill, Mr. Henry, Sledmere Field, first premium, Cup and Sweepstakes.		
Almack, Mr. Bishop, Burton, second premium, (11 competitors—20 entries).....	5	
Nine Gentlemen entered who declined to compete.		
<i>Five Breeding Ewes and Lambs.</i>		
Iveson, Mr. Richard, Nuthill, near Hedon, first premium.....	3	
Almack, Mr. John, Leckonfield, second premium, (5 comp.).....	1	
<i>Wool.</i>		
Three fleeces of Hog Wool, (offered by E. W. Smith, Esq., of Routh).....	2	
Hill, Mr. Henry, Sledmere Field, (4 comp.).....		
<i>Stallions for Coach Horses.</i>		
Sheffield, Mr. George, Walkington, (18 comp.).....	5	
<i>Stallions for Hunters.</i>		
Reynard, E.H. Esq., Sunderlandwick, (3 comp.).....	5	
<i>Stallions for Roadsters.</i>		
Jefferson, Mr. Market, Weighton, (5 comp.).....	5	
<i>Stallions for Cart Horses.</i>		
Broadbent, Mr. Jonathan, Hull Bank, (4 comp.).....	5	
<i>Coaching Mares with a Foal.</i>		
Watson, Mr. John, Risby, (14 comp.).....	5	
<i>Coaching Mares.</i>		
Fisher, Mr. Robert, Leckonfield, (8 comp.)...	2	
<i>Hunting Mares with a Foal.</i>		
Clarke, T., Esq., Knedlington, (8 comp.).....	5	
<i>Hunting Mares.</i>		
Holiday, Mr. John, Wetwang, (4 comp.).....	2	
<i>Roadster Mares, with a Foal.</i>		
Nicholson, Mr. J., Watton Grange, (8 comp.)..	5	
<i>Roadster Mares.</i>		
Binnington, Mr. Thomas, North Dalton, (17 comp.)	2	
<i>Pair of Mares for Agricultural purposes.</i>		
Staveley, Mr. Isaac, Tibthorpe Wold, (3 comp.).....	4	
<i>Cart Mares.</i>		£
Staveley, Mr. Isaac, Tibthorpe Wold, (10 comp.).....	2	
<i>Three Years Old Coaching Geldings.</i>		
Northgraves, Mr. William, Cottingham, (8 comp.).....	3	
<i>Two years Old Coaching Geldings.</i>		
Johnson, Mr., Bringham, (10 comp.).....	3	
<i>Yearling Coaching Geldings.</i>		
Holby, Mr. Thomas, Rotsea, (7 comp.).....	2	
<i>Three Years Old Coaching Fillies.</i>		
Birbeck, Mr. Henry, Scorb'ro', (12 comp.)....	3	
<i>Three Years Old Hunting Geldings.</i>		
Dalby, Mr. John, Corps Landing, (7 comp.)..	3	
<i>Yearling Colts by Revolution.</i>		
Drinkrow, Mr. John, Driffield, (4 comp.)....	6	
<i>Yearling Fillies, by Revolution.—No entry.</i>		
<i>Colt Foals, by Mercury.</i>		
Ransom, Mr., Wawne, (7 comp.)	5	
<i>Filly Foals by Mercury.</i>		
Hopkinson, Mr., Wawne, (2 comp.).....	3	
<i>Boars, Large Breed.</i>		
Petch, Mr. Robert, Southcoats, first premium..	2	
Moment, Mr. William, Walkington, second premium, (6 comp.).....	1	
<i>Boars, Small Breed.</i>		
Naylor, Mr. James, Grovehill, first premium..	2	
Smith, E. W. Esq., Routh, second premium, (2 comp.).....	1	
<i>Sows, Large Breed.</i>		
Fish, Mr. John, Preston, first premium.....	2	
Hall, James, Esq., Scorb'ro', second premium, (8 comp.).....	1	
<i>Sows, Small Breed.</i>		
Stephenson, Mr. G., Beverley, first premium..	2	
Hall, James Esq., Scorb'ro', second premium, (3 comp.)	1	
<i>Newest Agricultural Implements, not exceeding 5l.</i>		
Dry, Mr. John, Beverley—New Dressing Machine, invented by him.....	2	
Grayburn, R. S., Esq., Wootton House, near Barrow, for a Turnip Horse Hoe—a medal, value . 1		
Crosskill, Mr. William, for a Corn Rake and a Liquid Manure Cart	3	
<i>Extra Stock.</i>		
To Mrs. Edwards, of Market Weighton, for five Shearling Tups, to Mr. John Botterill, of Easthorpe, for two Cows, and to the Rev. L. Dennis, for a Hunting Mare, a silver medal each was awarded.		
<i>Sweepstakes of 10s. each.</i>		
Bulla.—Bosville, A., Esq., Thorpe (5 subscribers). Yearling Bulls (20s. each).—No competition.		
Cows.—Webster, Mr. Simeon, Aughton, (5 sub.)		
Two Year Old Heifers.—No competition.		
Yearling Heifers.—No competition.		
Fat Steers.—No entry.		
Aged Tups.—No competition.		
Shearling Tups.—Borton, Mr. John, Habton, near Malton, (2 subs.)		
Five Wethers.—No entry.		
Five Suckling Ewes.—No entry.		
Fat Wether, Ewe, or Gimmer.—Foster, Mr. Rich., Southburn, (2 subs.)		
Stallions for Coach Horses.—Bateson, Mr. Leonard, Bringham, (2 subs.)		
Stallions for Hunters.—No entry.		
Stallions for Roadsters.—Jefferson, Mr., Market Weighton, (2 subs.)		

Stallions for Cart Horses.—No competition.
 Yearling Stallion Coaching Colts.—Watson, Mr. John, Risby, (3 subs.)
 Coaching Mares.—Windass, Mr. Thomas, Beverley Parks (4 subs.)
 Hunting Mares.—No entry.
 Roadster Mares.—No competition.
 Cart Mares.—No entry.
 Three Years Old Coaching Colts.—No entry.
 Two Years Old Coaching Colts.—No competition.
 Three Years Old Coaching Fillies.—Bateson, Mr. Leonard, Brigham (3 subs.)
 Two Years Old Coaching Fillies.—Shilton, Mr. John, Nunkeeling, (5 subs.)
 Three Years Old Hunting Colts.—Knapton, Mr., Dunnington (2 subs.)
 Two Years Old Hunting Colt.—Brandham, Mr. Wm., Dringhoe, (2 subs.)
 Yearling Coaching Geldings.—Bilton, Mr. William, Rise (2 subs.)
 Two Years Old Stallion Hunting Colts.—No competition.
 Boars, Large Breed.—No competition.
 Boars, Small Breed.—No entry.
 Sows, Large Breed.—Bennett, Messrs. G. and E., Hornsea, (2 subs.)
 Sows, Small Breed.—No entry.

The successful labourers in husbandry, &c., were here called up and addressed by the CHAIRMAN.—The duty now devolves upon me to address a few words, and a very few words, not only to those whose names have been called already, and who have now been brought forward in the presence of this large assembly to receive the rewards which the committee have had it in their power to announce to them for the encouragement of good conduct and of good services rendered by them to their families and masters, in the various situations in which they have been placed. (*Cheers*). Gentlemen, (addressing the successful competitors) to some of you rewards have been given for having brought up the largest families without having had recourse to parish relief—to others rewards have been given for having continued the greatest number of years in one service—to another party rewards have been given for having reared the greatest number of lambs—a great proof of the attention displayed by you in the performance of your duties. (*Cheers*). Rewards were also given for services of other descriptions, but which it is not in my power to particularize, as I am speaking only from a recollection of the awards for different kinds of labourers which have been read over by our secretary. The association, I have great pleasure in being able to say, is ready to offer similar rewards for the same services. The Chairman in the course of some further remarks, observed that he believed from their conduct the successful competitors were well educated, and he hoped they would also educate in the same way their children.

The CHAIRMAN again rose and said—I must further request your attention whilst the report of the committee is read by Mr. Smith,

Mr. SMITH then read the report of the committee. It congratulated the society on the present successful appearances which it presented, and called upon the members and friends of the association for renewed exertion.

The CHAIRMAN—I now return to the performance of that part of my duty, as your chairman, which has been necessarily interrupted by the statements which you have just heard made to you by the secretary, and also by my friend Mr. Smith,

at the other end of the room—an interruption which was only further accompanied by a second interruption on my part, which however, I hope you will have excused—inasmuch as it had for its object, however inadvertently I may have done so, the impressing upon the minds of those who have now been called before you, and it may be upon others, that we who happen to be placed in a position of life above them, are not inattentive to their necessities, and are not otherwise than anxious for their welfare (*Applause*). The association are most anxious that they should continue to exhibit the same kind of conduct, the pursuance of which has placed them in that proud situation, in respect of which they have been already brought before this assembly. Gentlemen, I would now beg to give to you as the next toast “Success to the Agricultural Association of this Riding”—(*cheers*)—a toast which I should not have the slightest difficulty in proposing to you were it not that I know that you will expect that a toast of this nature should be accompanied by observations from me, and that you will have formed expectations that a toast of this nature should be accompanied with the requisite number of other toasts, but which I know I am perfectly unable to fulfil (*no, no*). It is therefore this feeling which creates an embarrassment in my mind in proposing the next toast. Gentlemen, I desire earnestly that you should not only concur with me in drinking success to your agricultural association, but that you should endeavour to give practical effect to that success by every means and in every manner in which it lays in your power to do so. I would gladly suppose that there can be no individuals present who require to have demonstrated to them the advantages of such societies as the present. But should any such be present in this assembly, I would only desire them to recollect in the first place what was the agricultural situation of the East Riding of York about forty years or rather more than forty years ago (*cheers*). If every one had been contented to go on in the same path which he had heretofore pursued—if every one had fancied that the system they themselves were pursuing was one which admitted of no improvements, how could it have been possible that we should have the face of the country so entirely altered as it has been during the period to which I have alluded? I know, gentlemen, that it may be said that the improvement of the face of the country took place under circumstances widely different from those of the present time—that the country was at that time engaged in a war the effect of which was to enhance the price of every kind of provision, and the effect of which was to induce parties to go into paths different from those which they had hitherto pursued. But, gentlemen, let it not be said that because those who have gone before us have so far changed the face of the country—do not let us suppose that we are in a state admitting of no further improvement (*hear hear*). Gentlemen, we can on no ground whatever come to such a conclusion. But supposing that were the case, let us just look around us and see what is doing. Let us see if the other parts of the country are encouraging associations like the present one. The country was giving such societies encouragement, and I believe that the result of such associations will be to effect the desideratum of agriculture, namely to grow the greatest quantity of produce at the smallest expense; and I desire you to consider what would be the consequences of our standing still, while all

the neighbouring localities were encouraging the formation and continuation of associations like this—to effect, and they would effect improvement in that description of business, namely, agriculture, in which you are all concerned (*Cheers*). Gentlemen, it cannot be unknown to you, and if it is unknown to any body he cannot lose too little time in satisfying himself of the belief of the truth of that of which I have myself no doubt, namely, that the soil of this country is capable of being brought to a higher state of cultivation than that at which it has arrived—and it is in consequence of that that I desire you to unite with me in drinking to the success of this association. The science of chemistry as connected with agriculture, was only very imperfectly and inadequately understood—(*hear hear*):—and I want to know if any—perhaps a few persons may have talents so to do—but it is possible that the mass of those I now see before me can be studying in their houses with a view of acquiring a knowledge of that which is the best method of applying the science of chemistry to agriculture. I will not dilate on the various experiments which have been made in the practical application of our land by the introduction of manure different from that formerly in use. But it is the fact that from the use of manures different from those in common use great advantages would be gained. How far it may be possible to realize that I will not say, which my honourable friend (Sir Thomas Legard) on my left hand held out to those whom he has so lately addressed at Burlington. I will not with great confidence hold up my hand to say what he did; but if it be true that a man may carry in his waistcoat pocket as much manure as may manure an acre, then the science would be worth contending for (*Applause*). My object, gentlemen, in desiring you to promote the success of this association, is that you may not mistake that precise article to which my honourable friend alluded to—but I will not place myself in the same situation of finding the truth of what was stated by one who said that he could carry in one of his waistcoat pockets as much manure as was sufficient for the purposes of an acre of land. In reply to this it may be said that the other pocket would contain all the produce of the manure, which the first-mentioned pocket contained (*Applause and laughter*). That, gentlemen, is another reason why I most earnestly beg of you to promote the success of this institution. Let me ask any of you who have been in the show-field in the course of the day,—and I presume all of you have attended—I might ask, though the quantity of the stock exhibited may not have come up to the expectations of you all, whether there has not been a show in that field amply sufficient to gladden the hearts of all engaged in the prosperity of agriculture (*Cheers*)? Then there is another reason why I would most earnestly appeal to you all to give attention to promote the interests of the society of which I am a sincere but inefficient advocate. I ask you not to let the association suffer in consequence of the small number at the show from the badness of the day—or from any trivial cause of absence—or because a friend of yours will not consent to come to Beverley and make it a party of pleasure (*Applause*). I invite you on the other hand to become members of the association (*Applause*). I wish you to identify yourselves with the prosperity of the association—to identify yourselves with the soundness of the society, to see that the number of its members is large—and that its funds are ample—and that it is able to give

prizes of that value and to that extent which may make it worth while for persons to become competitors for them (*Applause*). Gentlemen, it is on these various grounds that I trust the proceedings of this day may bring to our association a large increase of members, and from the description of persons I have the pleasure of seeing around me—if an increase of numbers is brought there will along with it be brought an increase of respectability (*Applause*). Gentlemen, why should any of you not join us who have, as you all know, a most effective committee—a body of gentlemen who, to great personal inconvenience and with much toil and labour, conduct the business of the association. Some of the members of the committee belong to the same rank in life to which I belong—others again in the rank of most of you, respectable yeoman—farmers are everywhere represented in the committee, and in such a way as to satisfy you that due justice will be done to you all—you have the most effective secretary (*Applause*). There can be no doubt on that subject. You have, therefore, every inducement to join the association. You certainly have a very inefficient president (*No, no*). I am perfectly aware that in your president you have manifest inefficiency, but I trust that you will not let the association suffer in consequence of any want of those qualifications which you might have expected he would have displayed this day (*Cheers*). I hope on the other hand that you will all sink in your consideration the inefficiency of the president, who had put himself forward in a situation which he knew he was unable to fill. In conclusion the noble chairman called upon the company to pledge success to the society in a full bumper (*Great applause*).

“Speed the Plough”—*six times six*.

The CHAIRMAN—Gentlemen, the next toast will be proposed to you by Sir Thomas Legard, to whom I therefore request your attention (*Cheers*).

Sir T. D. LEGARD said—My Lord and Gentlemen, before proposing the toast that has been unexpectedly assigned to me, perhaps I may be allowed to remark, that it is no small gratification to me to be present at the opening of this large, and, as it promises to be, handsome structure; and that gratification is increased when I reflect, that of all the uses to which this room may hereafter be applied, none could have been more auspicious for its opening than a large agricultural dinner, at which all persons may assemble, free from the angry feelings of party strife and politics; having no object in view but to advance the interests of a peaceful calling—to encourage industry—to increase the productiveness of the soil—and so to spread smiling plenty throughout the land. But to proceed with the toast: many persons who are now here, may recollect, that at the great Yorkshire Agricultural Meeting, last year, held at Leeds, Mr. Beckett Denison, in proposing the toast now entrusted to me, drew a very animated picture of a half-bred hunter, and he endeavoured to impress upon the members of the association, the propriety of breeding from horses of that kind. Now, although in these times of Eglinton feats, and restored chivalry, any one chancing to see Mr. Beckett Denison, who is a tall fine manly person, and a noble specimen of the genus homo, mounted upon a powerful active half-bred hunter, and charging the fences in the rear of the grand stand at Doncaster, in pursuit of the ragged regiment of thimble riggers, as once upon a time took place; any one, I say, seeing two such specimens of man and horse, might for a moment be led away from his

better judgment, and be inclined to think it matters little how the animal is bred, so long as it is a good specimen of the kind; but I believe there is no greater fallacy than this; all the writers upon agriculture lay it down as a maxim of the first importance, that purity of pedigree should be preserved, at all events on the side of the male; and every practical farmer is aware of the danger and difficulty of crossing, and the endless confusion that arises when they begin from a half-bred sire; in fact, the very thing Mr. Denison would suggest, has been repeatedly tried by individuals, but never with any uniform success. A chance good hunter or two may have been produced, but nothing to the number of misshapen mongrels, whose want of pedigree and want of pace, have made them almost unsaleable, and certainly unrideable, for who would buy a hunter without a pedigree, or risk his neck over the Holderness clays on a horse that was short of breeding; but I feel that it is utterly useless to occupy your time in conflicting opinions so entirely at variance with your experience and wiser practice, for I feel satisfied that no theory about half-bred hunting stallions will ever make a revolution in your opinions; and I trust it will never go forth again, that in Yorkshire of all places in the world, the agricultural societies give a preference to the breeding of cocktails. It now only remains for me to give the toast, trusting that those gentlemen whose healths I have to propose, will enlarge upon those subjects for which they have been successful. I have the honour to give you—"The successful competitors."

"The health of the successful candidates."—*(Three times three.)*

The CHAIRMAN said, he would be happy to hear any of the successful candidates return thanks.

E. H. REYNARD, Esq., of Sunderlandwick, after being loudly called for, rose for the purpose of returning thanks on behalf of himself and of the other successful competitors. For the very flattering mark of their attention in singling him out from among the competitors of that day who had been successful, he returned them his most heartfelt thanks. If all the exhibitors of the day felt as happy as he did, the judges might go home feeling that they had given satisfaction. *(Laughter and cheers.)*

The CHAIRMAN—Gentlemen, I beg to announce to you that the next toast will be proposed by Mr. Edward Smith *(Applause.)*

Mr. SMITH proposed, in an excellent speech, the

health of the tenantry of the East Riding of Yorkshire. He dwelt upon the good character and industry of the yeomanry of the East Riding, and called loudly upon the landlords to support them in their exertions, by giving their countenance to such meetings as the present, which were of the highest importance, and by subscribing towards the funds of the association.

"The tenantry of the East Riding."—*(Four times four.)*

Mr. HILL returned thanks.

Mr. HILL, at the request of the Chairman, rose with very great pleasure to propose the health of those gentlemen who had so kindly undertaken to act as judges on this occasion. *(Cheers.)* And although he had not been fortunate enough to have produced stock there to-day, for which, in the opinion of those gentlemen, he was entitled to receive a prize, yet so confident was he, from the care and attention which those gentlemen displayed in looking at the stock which had been brought before them, as well as from the good judgment which those gentlemen are well known to possess—he believed that those candidates who, like himself, had been unsuccessful, would return home, convinced in their own minds, as he had been, that they had been fairly beaten; and that they will make exertions to bring forward stock next year, which might render them deserving of the prize which he hoped would be awarded to them. *(Loud cheers.)* He would not detain them longer, but beg them to rise and drink the health of the judges. *(Applause.)*

"The Judges." *(Five times five.)*

Mr. TORR, of Riby, Lincolnshire, one of the judges, returned thanks in a neat speech. The judges, after the reception which the toast had received, were amply compensated for any trouble they had been at in the course of the day's proceedings. He congratulated the members highly on the fineness of the stock of every description which had been shown in the yard that morning; and he was desirous to mention in particular the exhibition of horses and sheep—*(hear)*—such an exhibition of horses, he believed, if equalled, could not be surpassed by any local association in England. *(Applause.)*

The healths of the "President" and "Vice-Chairman and Committee" followed, shortly after which the Noble Lord left the chair. A merry party remained, and kept up the entertainment some time longer.

AGRICULTURAL REPORT.

GENERAL AGRICULTURAL REPORT FOR AUGUST.

Taken as a whole, this has proved the most auspicious and favourable month to the crops, as well as vegetation in general, we have had to record for a series of years past; while the prospect of our farmers has been decidedly improved in every point of view. From the 1st till about the 8th the greatest anxiety was manifested by all classes as to the appearance of the standing wheat, owing to the numerous misstatements which were put forth by speculators and others, and to accounts being received from the growers themselves of an opposite tendency. Throughout the western, southern, and midland districts, the wheats, upon poor soils, were re-

markably thin; while upon highly cultivated farms not the least complaint could possibly be made. In the northern counties, viz. Lincolnshire, Leicestershire, Northamptonshire, Yorkshire, &c., the crops of all descriptions of grain, but more particularly those of wheat and barley, were fine almost beyond recollection; indeed, we ourselves are called upon to admit that finer wheat than that we have seen growing in the vales of the neighbourhood of Spilsby we never witnessed, and that no just cause existed for the very melancholy reports which were observed in many contemporary prints. However, the true test to all this is thrashing, which has been carried on somewhat extensively—nearly 1,300 quarters of new wheat having appeared on sale at Mark-lane alone; and fair remunerative prices have been readily ob-

tained—those parcels of 59 to 60lbs. per bushel having realized 74s. to 78s.; those of 60½ to 63½lbs., 80s. to 84s. per quarter. Scarcely any barley has, as yet, been submitted to that process, but the yield is highly spoken of. With respect to this year's growth of wheat, we have come to this matured conclusion, viz., that it will come up to a fair average for the kingdom, and prove the finest as to quality ever gathered. Now we hold that *quantity without quality* is a great evil, and that a fair quantity, *with quality*, more than compensates for any slight deficiency which may be found to exist in the general yield. We may, possibly, be asked, whether or not there will be a sufficiency of wheat grown this year to meet every demand for home consumption? Our answer would be, that a slight importation of foreign, of superior quality, will be required. However, as it is fully anticipated that the duty will recede next week, either to 3s. 4d. or 2s. 8d. per quarter, the whole of the bonded stocks, amounting to upwards of 500,000 quarters, will be thrown upon the home market, and readily counterbalance any of the evils which may arise from limited supplies of English wheat. There is one subject to which we beg to direct the attention of our readers, we mean the fallacious idea which appears to be gaining ground of the prices of wheat, in the event of the whole of the warehoused quantities being released at a very low or nominal impost, suffering a rapid declension; but such cannot, even under those circumstances, be the case, as it is well known that the wheat in bond is chiefly from Danzig, Hamburg, and Riga, and of the best marks shipped from those ports; hence will always command high rates, even with a steady influx of that of home production. Notwithstanding the violent gales of wind and heavy rains which were experienced about the 18th, we are happy in being enabled to assert that the communications which have been transmitted to us, by our numerous farming correspondents, convey the pleasing intelligence that but trifling injury was sustained in any quarter; while, on the contrary, the greatest benefit was derived by the turnips—which had become sickly and yellow, from the absence of sufficient moisture. At least three-fourths of the wheat and barley have been already secured in favoured districts; while north of the Humber harvest has become general.

In the various markets of consumption held in our provincial districts in the course of the week, the supplies of English wheat have proved somewhat extensive, and of very superior quality. In barley a limited amount of business has been passing; but good sound oats have gone off briskly, at an enhancement of 6d. per quarter. Beans and peas have commanded little attention.

Throughout Scotland, copious showers of rain have fallen, which appear to have had a beneficial effect upon the crops: and the value of corn and pulse has declined materially.

From Ireland we have letters, stating that the harvest is proceeding rapidly, but the produce is expected to exhibit a comparative falling off, both as respects quantity and quality: still the quotations of corn have suffered a considerable depression.

In the north of England the hay harvest has been concluded, but the produce is not superabundant.

Store stock has been held at high rates, owing, possibly, in a great measure, to the prevailing epidemic having caused many severe and almost irreparable losses to our graziers.

The following is our monthly statement of the supplies and prices of fat stock exhibited and sold in Smithfield cattle market. The former have consisted of 14,222 beasts; 132,000 sheep and lambs; 994 calves; and 3,040 pigs; while the latter have ranged as follows:—

Beef, 3s. 2d. to 4s. 8d.; mutton, 3s. 4d. to 4s. 10d.; lamb, 5s. to 6s.; veal, 4s. to 5s. 2d.; and pork, 4s. to 4s. 10d. per 8lbs. to sink the offals. The primest beasts, sheep and lambs, have commanded a steady inquiry; but the inferior kinds, as also calves and pigs, have experienced a sluggish demand. There has been a general complaint amongst the salesmen of the stock coming to hand in very bad condition, arising not only from its half-fat state, but also the prevailing complaint before noticed.

A STATEMENT and COMPARISON of the SUPPLIES and PRICES of FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, August 26, 1839, and Monday, August 24, 1840.

At per 8lbs. to sink the offals.

	Aug. 26, 1839.			Aug. 24, 1840.		
	s. d.	s. d.		s. d.	s. d.	
Coarse & inferior Beasts	2	10	to 3 0 ..	3	0	to 3 4
Second quality do.	3	2	3 4 ..	3	6	3 8
Prime large Oxen.....	3	6	4 0 ..	3	10	4 0
Prime Scots, &c.....	4	2	4 6 ..	4	2	4 6
Coarse & inferior Sheep	3	0	3 8 ..	3	4	3 10
Second quality do.	3	10	4 0 ..	4	6	4 4
Prime coarse woolled do.	4	4	4 8 ..	4	6	4 8
Prime Southdown do.	4	10	5 0 ..	4	10	5 0
Lambs	4	8	5 8 ..	5	0	6 0
Large coarse Calves ..	4	2	4 8 ..	4	2	4 10
Prime small ditto.	4	10	5 0 ..	5	0	5 2
Large Hogs.....	3	10	4 6 ..	4	0	4 6
Neat small Porkers ..	4	10	5 2 ..	4	8	4 10

SUPPLIES.

	Aug. 26, 1839.	Aug. 24, 1840.
Beasts.....	3,249	3,177
Sheep	26,030	23,986
Calves	153	160
Pigs.....	610	509

The supplies of slaughtered meat up to Newgate and Leadenhall markets have been extremely small, and, owing to the inferior condition in which they have arrived, low prices have been obtained for them.

THRASHING MACHINES, &c.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—May I beg to ask some of your numerous readers which of the many sorts of thrashing machines they would recommend to a person cultivating but ten or a dozen acres of corn a year? The flail I have a great objection to (and the machines at present in use in this county, Devon,) are all of three or four horse power, and the outlay quite out of proportion to a small farm. And also, if the same machine could not be constructed so as to grind barley for the pigs, and cut chaff, &c., for horses, and at an outlay sufficiently moderate to justify a small farmer in purchasing one? Having grown a quantity of buckwheat this year, I want to know the best way to make the most of it, and also the particulars how to cultivate the winter oat, how often they are to be cut, and the latest time to cut them, &c.

If you will allow me, through the medium of your journal, to obtain information on the above mentioned subjects you will oblige, Sir, your constant reader,]

Exeter, August 1st, 1840.

S. T.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—As your excellent Journal seems the best medium of procuring agricultural information of all descriptions, I shall feel much obliged as a young breeder of cattle, if some experienced person will inform me at what age heifers generally produce their broad or cow's teeth. I am sir, yours obediently,

YOUNG FARMER.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

IPSWICH LAMB FAIR.—On Saturday, Aug. 22, this annual mart was held at Handford Hall, when upwards of 110,000 sheep and lambs were penned. The good effects of the recent genial showers were apparent in the capital condition in which the animals came up to the field. Though the show was considered a good average one, and the buyers were comparatively scarce, yet the prices of lambs were high; business, however, on the first day was not so brisk as usual. On Monday the supply being thinner and the demand equal to that of Saturday, there was considerably more trade than has been remembered for many years on the second day. Both buyers and sellers seemed to come with the disposition and determination to deal, and consequently very many extensive sales were effected, prices being a shade higher than on the previous day. One of the principal growers informed us that he disposed of his flocks without much difficulty as soon as penned. Among the flocks sold were the following, belonging to the most eminent growers in the county:—Mr. Rist, of Foxhall, sold his ewe lambs at 30s., and wether lambs at 25s. Mr. Catlin, of Butley Abbey, sold his ewe lambs at 26s. Mr. Joseph Burrell, of Tuddenham, sold 800 half-bred shearing wethers and ewes, at from 36s. to 42s.; his down ewes at from 32s. to 42s., and his ewes and wether lambs at from 20s. to 24s. These were very large lots. Mr. Everitt sold his ewe lambs at 28s., and his wethers at 26s. Mr. T. Betts sold his fine flock of Norfolk ewe lambs at 40s. Mr. Calleeu, of Chillesford-lodge, sold his beautiful shearing ewes at 40s. Mr. Fyson, of Heigham, ewe lambs at 28s., and wether lambs at 25s. 9d. Mr. Kersey, ewe lambs at 21s. Mr. Edwards, down ewes 28s. Mr. Cutting, wether lambs at 22s. Mr. Garnham, of Rougham, wether lambs at 24s. 6d. Mr. Webb, (brother of the famous Mr. Jonas Webb, of Braham), down ewe lambs at 26s. Mr. George Gale, of Rushmere, ewe lambs at 25s., wether lambs at 24s., and the refuse at 19s. Mr. Roper, of Rougham, ewe lambs at 25s. 6d., and wether lambs at 23s. 6d. Mr. Webb, of Hinthlesham, ewe lambs (sold to Mr. T. Crisp, of Gedgrave) at 26s. Mr. Frost, of Witherstead, refuse lambs at 26s. In the beast department, there were several animals; but the quality of those exhibited was not such as to require any particular notice; and the trade was slack. There was a splendid show of horses; and very extensive stands of poney—this part of the fair received much attention, and a good deal of liveliness prevailed among the dealers. Messrs. Ransome, according to custom, showed an extensive lot of agricultural instruments, consisting of patent ploughs, chaff engines, &c. &c.; and we understand transacted a great deal of business. Messrs. Bond, Turner, and Hurwood, of St. Peter's foundry, also had an establishment of the same description on the ground, and we are happy to observe that these gentlemen appeared to be very busily engaged with a numerous body of friends.—*Ipswich Exp.*

LINCOLN MARKET, Wednesday, Aug. 12.—There was a fair supply of beasts to this day's market, of good quality, which experienced not so good sale as at previous markets; they were however nearly all sold at from 7s. to 7s. 6d. per stone. Of sheep there was rather a short supply; the sale brisk at from 6d. to 6½d.

MELROSE LAMB FAIR.—At this great lamb fair held this day (Wednesday) the supply of lambs, principally bred and half-bred, was fully greater than last year, the number being stated at about 70,000, and they were in general of excellent quality. Great numbers of buyers being in attendance, it was a capital market, and nearly all were disposed of, at prices much the same as at the recent lamb markets. Bred lambs brought from 20s. to 23s.; half-bred from 16s. to 20s.; Cheviot lambs, best, from 10s. to 12s., and inferior lower in proportion.

SAXMUNDHAM LAMB FAIR.—We have the pleasure to state that the quantity of stock and lambs at this fair shewed an increase. There were from ten to twelve thousand penned, which met a ready sale at liberal prices. Nearly the whole were sold. The com-

pany was numerous: amongst whom were Sir Charles Blois, Bart., the Hon. Mr. Vanneck, Mr. Arcedeckne, Mr. Bales, Mr. Barthrop, &c., and many of the principal dealers from this county, and Essex and Norfolk. The best possible arrangements were made throughout.

FLOCK SALE.—At the sale by auction of South-downs, of Thomas White, Esq., at the Friday Wood Farm, in the parish of Beresford, near Colchester, held last Tuesday, August 18th, by Mr. J. G. Fenn, the following prices were realised:

	s.	d.	s.	d.	s.	d.
Pure Southdown Stock Ewes	37	6 to 26	6	30	0	
Crone Ewes	21	6	12	6	19	6
Wether Lambs	29	0	23	0	26	3
Ewe ditto	25	0	16	0	21	6
One and Two-shear Tups	126	0	42	0	80	0
Lamb Tups	46	0	30	0	32	6

The result of the Sale was most satisfactory, and Mr. White announced his intention of making it annual. Previous to the commencement of the business the company, consisting of about 200, partook of an elegant and substantial luncheon at the Farm House, and after the sale a party of between twenty and thirty dined with Sir Henry Smyth, at the Hall, when the breeding of the sheep, and agriculture generally, were the subjects of much interesting and practical conversation.

MODEL FARMS IN THE NORTH OF SCOTLAND.—We understand that, in imitation of the proposed model farms intended to be established in England, there is a proposal about to be made to institute one of the same kind in this northern district of the country, which, we have no doubt, will be a great advantage to the progress of agricultural improvements, as affording a specimen of the most approved modes of husbandry, which our farmers can visit and inspect from time to time.—*Inverness Herald.*

We noticed in our last a gigantic specimen of Tartarian clover, to be seen in the garden of Mr. Saul, near Lancaster, which had attained the extraordinary height of 8 feet. We have now to state that there are growing in the Manse garden of Applegarth, at this time, several hundred plants of the Mellot white clover, the tallest of which measures 10 feet 2 inches. The whole of the plants are still growing vigorously. The seed was got from Lawson, seedsman, Edinburgh.—*Dumfries Herald.*

PRICE OF MEAT.—By an act passed in 1532, the price of beef and pork was limited to one halfpenny, and that of veal and mutton to three farthings the pound avoirdupois (See Sir T. M. Aden's "State of the Poor," 4to., vol. i., p. 98). Subsequent statutes renewed former penalties enacted against forestalling and regrating, that is, purchasing any commodities on their road to market, and re-selling them under four miles of it. Persons who bought up corn or other articles of necessity, with an intention of holding them for future sale, were deemed unlawful aggressors, and cattle were not allowed to be sold within five weeks after purchase. The exportation of grain was also prohibited when the price of wheat exceeded six shillings and eight-pence the quarter. Stat. 1st c. 2nd Philip and Mary, 1553-4.

THE SCORCHER.

Sir,—I beg to inform you that the experimental trials of Mr. Winrow's patent scorchers have been completely successful, and I am satisfied it is the best and most effectual method for the destruction of the turnip fly; the hot blast from the furnace of the machine passing between the rows without injuring the plants, destroys the insects and weeds, and will perform from seven to eight acres per day with one horse.

I am, Sir, your obedient servant,
A CONSTANT READER.

Nottingham, June 13, 1840.

P.S. Mr. Winrow resides at Nottingham.

REVIEW OF THE CORN TRADE DURING THE MONTH OF AUGUST.

We have frequently had occasion to direct the attention of our agricultural readers to various defects which exist in the present corn laws, and more particularly to the manner in which the weekly averages of grain of all descriptions are collected. In our last review of the state and prospects of the corn trade, we ventured to state that, by a little well directed management in the average prices of wheat, a vast quantity of foreign grown wheat would in every probability be admitted into our markets of consumption on the payment of very moderate, if not actually nominal duties, and the result has done more than established the correctness of our anticipations; for upwards of one million of quarters of wheat, foreign flour included, will be speedily introduced into consumption, to the great injury of the agricultural interest, and of our public revenue. That this effect has been produced by admirably managed speculative purchases, in various markets of British wheat, at prices above the market value, does not admit of one moment's doubt; for, if any proof of this being the fact be wanting, it can most incontrovertibly be established by the prices of flour during the same periods, and by the decline in the value of bread itself which occurred during the course of last month. *Somebody*, under the signature of a merchant, in the Morning Chronicle, asserts the impossibility of monopolizing the British wheat market, which *everybody* must know to be a truism, but the average prices can be managed without resorting to measures which are impracticable, and more particularly when the rates of duties themselves are worth the attention of those who speculate on the importations of foreign grain. We recollect, about two years ago, *somebody*, in the same journal, after giving a dismal description of the appearances in the fields, predicted a general scarcity, because, after searching the world over in his imagination, half a million of quarters of foreign wheat could not be obtained to supply the expected deficiency in the crop of 1838, and as the merchant who is now figuring on the same subject in the Chronicle, is using assertions of a similar tendency, we strongly suspect that he should have used the signature, not of a merchant, but of an importer of, and speculator in, foreign wheat, or rather in the duties payable thereon when entered for home consumption. We shall not go the length which the writer of a powerful article on this subject, and published in the Herald, has gone, when he says that the average prices, latterly, have been raised by fictitious purchases of wheat, although we have more than once known the same parcel of wheat bought and resold three times on the same market-day at rising prices; of this, however, we have no cause nor reason to accuse the holders of foreign wheat this season, for it was well worth their while to operate fairly in the market, without resorting to fraud for the production of the desired effect. During the last two months, as is always the case at the same period of the year, the supplies of British wheat, generally, in the large markets of consumption, were small, and well-managed purchases of from two to three thousand quarters weekly during the then current six weeks are perfectly sufficient for the regulation of the

duties to be paid on the entry of foreign wheat for home use. That these speculative purchases must afterwards be resold at probably a heavy loss, is most certain, but a loss of a pound or even forty shillings per quarter, on twenty thousand quarters, which is the utmost length necessary to be risked in speculations for such purposes, is really a trifle if put in the scale with the money which may be gained from the reduction of duty alone. When these operations commenced, this season, the duty on the entry of foreign wheat was 18s. 8d. per quarter, and since then certainly nothing has occurred in the appearance of the coming crop to have caused any material reduction occurring in these rates of duties. The partial thinness existing in the winter wheats was then as visible as it is now, if it exist at all. By well managed speculative purchases, therefore, an object has been gained, which the elements, during the whole season, have hitherto denied; and the expense altogether cannot be more, on this occasion, than from twenty to thirty thousand pounds, probably not a tithe of this sum, for which sacrifice much above half a million sterling taken from the revenue itself, will eventually find its way into the pockets of the importers of foreign grain, and thus triumphantly enable these gentlemen to crown and conclude their present and late speculations in foreign wheats. The corn laws were enacted, not for the purpose of increasing the wealth of the importers of foreign grain beyond the usual profits resulting from commercial enterprises, but for the protection of every interest in the empire, whether trading, manufacturing, or agricultural, and it is a great defect in the construction of these laws, that a door is opened by them for making money, not out of the difference in the value of grain here and abroad, but out of the British revenue itself. Our farmers have taxes to pay whether the produce of their fields be large or small, whether the quality of their crops be good, bad or indifferent, and it is certainly not for the interest of the British community, that, under any circumstances, the foreign proprietors of wheat should not pay taxes to this country in proportion to the quantity of their grain consumed in our markets. When it is necessary to admit foreign wheat at all into this country for sale, 15s. per qr. is the lowest rate of duty which should be charged on it, for this is nearly the charge which is paid by our home growers, in the shape of public and parish taxes, and this charge should never be paid by the British consumer of foreign wheats, but by its foreign proprietor. To employ the inhabitants of foreign nations in the production of food for the consumption of the people in the United Kingdom is a policy perfectly at variance with all the rules of civil life. The value paid for the necessities of life to their home producers remains within the empire, whilst the money remitted abroad in payment for foreign produce is a total loss to the British community. In the one case it continues in circulation amongst manufacturers and other industrious classes, whilst in the latter instance it is the certain precursor of much individual distress. Whenever the season for securing the crop is unfavourable, a large amount of specie again is abstracted from the

circulating medium here, and remitted to the continent for grain, from whence it never does return, and a part, at all events, of the existing means for productively employing our population is thus withdrawn. The weather, certainly, during a part of August, was not so favourable as it might have been for gathering that portion of the crop, which was ripe enough for reaping, still as yet no injury of any consequence has been done by the partial rains which have fallen; on the contrary, to the later portion of the crop generally, and particularly to the potatoes, turnips, and pasturage, they have been of great advantage. Should the remainder of the season therefore only prove propitious, we still anticipate an average crop of wheat in quantity, and in quality greatly superior to that of last year. Indeed for many years past the quality of the new runs brought forward for sale has not been so fine, and little of it so heavy as it has proved to be this season, the whole being perfectly competent and fitted for the production of the finest flour, without any mixture of old or of foreign wheats amongst them.

Millions of acres of excellent cropping land are still in a state of nature in various districts throughout the United Kingdom. In the proposed county of Victoria alone, two hundred thousand acres may be reclaimed and rendered highly valuable to the commonwealth. In the harbour and bay of Wexford also, fifty thousand acres may be drawn from the water into cultivation, and rendered useful to the community; these benefits, however, cannot be obtained if our surplus capital be drawn out of the British empire in exchange for food which is not actually necessary to the wants of the people. On the contrary, a corn trade with foreign nations under such circumstances, must be a bar to such important improvements, and must deprive the people of wages, who otherwise might be so profitably employed in their cultivation. A part, at all events, of the ten millions sterling which during the two last years have been paid away for foreign food, would, had they been in circulation at home, been now most profitably employed in draining the waters in Norfolk and Lincolnshire from the new county of Victoria, and in clearing away the mud and other impediments in the way of cultivating the extensive wastes in the neighbourhood of Wexford, and indeed in almost every district in Ireland. Immediate employment, and fair wages to many of the productive classes of society, would be the first benefit derived from improvements of this description, and a vast addition to the agricultural produce of the empire must be their final result when they are completed. These great national advantages however, can never be obtained without the active agency of the corn laws, and their completion may be made more immediate by rendering these laws more protective to agricultural industry, and more favourable to the public revenue than they are at the present time. The manner in which the weekly average prices of grain are struck, we repeat may be made far more perfect than it is at present, and when necessity demands supplies of foreign grain for home consumption, a duty must be charged on its importation in some measure proportionate to the direct and indirect taxes charged on its production in the United Kingdom. Since our last publication, for instance, the reports from all the great corn markets have weekly and uniformly represented the supplies of English wheat as being every where more than usually small, and yet we find the quantities of that article returned latterly

to the corn-inspector for the purpose of striking the average prices which regulate duty, unusually large, and prices weekly becoming dearer. During two of the last six weeks in the London return, for instance, the quantity is more than double of the previous week's arrivals, and double sales of the quantity received consequently must have taken place, *for all the London granaries are at present pretty well cleared of wheats of British growth*; to have produced this effect, it is impossible for the corn-factors when they sell wheat, to know whether it be intended by the purchasers for grinding, or for speculative purposes, and consequently therefore, they can never make correct returns.

It is a curious circumstance, that since our last publication, notwithstanding the reported improvement in the value of wheat, flour has been exceedingly dull in the market, and to effect sales of this article much difficulty has been experienced, unless by those millers and flour-factors who submitted to lower prices; and it is still more extraordinary, that during the same period, one penny and a halfpenny of decline at least has occurred in the value of the four pound loaf. This paradox is far beyond our comprehension; we only mention the fact to show, in a better light, the many imperfections now existing in the mode of striking the weekly average prices of grain, and the actual necessity for a radical reform in the system, for until it be amended, similar scenes will now annually be enacted until they be concluded by a national convulsion, as well in commerce and agriculture, as in the wages of labour, in the revenue, and in the value of every description of property. In fact it must produce a virtual repeal of the corn laws, and must eventually be attended by all the misfortunes of a positively free trade in foreign grain. In consequence of this state of the corn trade, it is not possible for us to report the actual value of wheat since our last publication. Taking our opinion of it, however, from the prices of flour (its produce when manufactured), we hesitate not in saying that it is now decidedly cheaper than it was in the last week of July 1840, for meal-making purposes, whilst for regulating the duties payable on foreign wheats, it is certainly considerably higher than our quotations of it were at that date. We leave our readers to draw their own conclusions from these facts.

The transactions in the barley trade since our last review of this subject, have been exceedingly limited in their amount, and equally unimportant. The supplies during that period have been so unusually small, that it is not possible to quote the actual value of the article. The duty on its importation from foreign states is at present, however, a fair protective one to British agriculture, but, at the moment, the foreign trade in it, is not of much consequence, else, in every probability, it would not now have been so protective. The usual breadth of land was sown last spring with this article, and the appearance of the crop is at all events luxuriant. The heavy revenue, however, collected from the manufactured barley, is a most unjust impost on the cultivators of barley fields, in as far as it places a limit to the consumption of their produce. Twelve millions sterling annually is net the subject so much of complaint, as the manner in which they are collected. The rates of duty charged per quarter on malt, and per gallon on spirits, manufactured in England, are much too high. The same amount of revenue may be raised by the reduction of these rates one-half, and the consumption of barley may, and must be doubled by a relaxation in the amount of these charges. In the year 1810,

when the malt duty was 34s. 10d. per quarter, only three and a half millions of quarters of barley were converted into malt, whilst in 1836 at a duty of 20s. per quarter, the quantity of barley converted into malt increased to nearly six millions of quarters, a far greater increase than what then occurred in population. Another remission in the duty of even 5s. per quarter would raise the consumption of malt probably to ten millions of quarters, and when it is considered that our population now amounts to nearly thirty millions, one third of a quarter of malt annually to each person is but a very scanty allowance. But the benefit of a relaxation in the duties now charged on manufactured barley would not be confined to an increase in the supply of the people with malt. It will render necessary the cultivation of another million of acres of barley lands; the profits of this addition to our home tillage will add annually to the public wealth, and will do much more than pay for the expense of the additional consumption of malt, which the reduction on the duty chargeable thereon would most inevitably occasion. Above all, the alteration eventually will open new channels for the productive employment of the people, and increase the home consumption of every description of manufactured goods by the improvement which must be its consequence, in the wages of labour. To reduce the duty also now levied on spirits distilled in England, and to place them on a level with the charges in Scotland and Ireland, will improve the revenue, and will totally destroy the baneful system of smuggling, which the high duty in England encourages, and by which nearly one-third of the spirits now consumed in England are supplied. The reduction which occurred some years ago in the duty on home made spirits, inadequate as it was to the best interests of the empire, was however attended at all events by one advantage, in as far as the improvement which it occasioned in the science of the rectifier, caused English gin to be nearly universally substituted for Dutch Geneva, in consequence of the improvement effected in its quality. The time is not far distant when the consumption of French brandies must be reduced by the daily improvements which are now in rapid progress in the manufacture of home-made brandy. There is a national Cognac brandy distillery in King Street, Snow Hill, and several others throughout London, where the science displayed in this new branch of rectification already has considerably interfered with the trade of the foreign brandy importer, and were only the home distillation duty reduced to a fair rate, little doubt needs be entertained that British spirits will take the place of French duty-paid brandies, in the same way, as they have already superseded the use of Dutch duty-paid gin. In fact a considerable advance towards the completion of this important object has already been made, and under only proper encouragement, before long, the extract of British barley will generally be substituted for the spurious spirits which are now imported, partly legally, but by far the greatest part illegally, under the name of French brandy. In this way the consumption of barley grown at home may also be considerably increased, and the immorality of smuggling entirely suppressed. Above all, in the eyes of the Chancellor of the Exchequer, the revenue will be increased by the reduction of duty, and, to make the experiment, he will find himself producing an universal good, which cannot be attended by one solitary disadvantage to any class in our society.

In the oat trade, during the month of August, little animation has existed, and the variation in prices has been immaterial. In the oat districts in Great Britain, and throughout nearly the whole of Ireland,

the produce of last year's crop has been nearly exhausted, and we have had consequently to depend on foreign supplies latterly for our necessary consumption. This state of the oat trade clearly demonstrates the necessity of still more effectually, than we have hitherto done, protecting the cultivation of our own fields, and of affording every encouragement to further agricultural improvements throughout the United Kingdom; for had war, or other unforeseen circumstances deprived us at this time of foreign aid, in our oat consumption, the consequences would have been seriously felt by a great portion of the people. There are millions of acres of land now waste and entirely useless to the people, which may be reclaimed, we may say, from nature, and converted into excellent land for the production of oats, and surely our surplus population may be much more patriotically employed in improvements of this description, than in the cultivation of lands equally wild in our colonies. The United Kingdom has the means in the greatest abundance of supporting a far greater population than she now possesses, out of the produce of her own fields, and the rapid improvements now making in tillage of every description, must eventually render her a great exporting country of agricultural produce of various kinds. The present appearance of the crop is luxuriant, and a favourable harvest is only necessary to secure a most plentiful growth of oats, plentiful both in quantity and in quality. Should the produce of this article in Ireland only equal present appearances, the importation of it from abroad will not be necessary during the coming crop season.

With beans and peas we have been very sparingly supplied during some time back, but the demand for neither of these articles has latterly been active, and it has chiefly been served by foreign importers, who have made their purchases abroad and their sales here, the former on moderate terms, and the latter on the payment of the lowest duty chargeable towards the public expenditure of the United Kingdom. The quality of the new peas is most excellent, the growth of both is abundant, and we expect the condition of beans will eventually be good, and in every respect equal to that of peas.

The potato crop will prove a plentiful one, and the quality of this most necessary root, second in importance to the people only to wheat, will be of the first description. The late rains have been very favourable to the improvement of this article, and have been most advantageous to turnips, to pasturage, and in that generally to every description of green cropping.

The information latterly received from abroad, respecting the state of the corn trade and its prospects, is of the usual description. The letters from Mark Lane regulated exportation shipments in all the great markets, and prices depended, at the latest advices, entirely on the value to be obtained here, and on the probable duty to be charged on entry for home consumption, their internal consumption not being of so much importance as to fix the value of wheat in the uncertain state of the London market. From the United States of America, letters dated in the first week of last month, represent the harvest throughout the Union as having been concluded, and they report the produce as being large, and the quality of a superior description. Prices continued then moderate, although some animation had been created by the accounts previously received from England; considerable purchases had been made, and the shipments to our markets would be much increased as soon as the new wheat and flour could be transported from the

interior to the great ports of shipment. From these states we shall certainly receive large quantities of wheat and flour before the conclusion of the present year, and time will show whether the speculations will turn out profitable. From the president downwards the benefit to be derived from the cultivation of the fields at home, formed the universal subject of conversation. Their agricultural resources are boundless, but the markets for consumption are limited, and this forms a topic for general complaint. In this the English Corn Laws take the lead, and because the legislature here prefer the British landed interest to that of the United States, every mercantile letter almost is filled with the most violent vituperation against these laws. The American wheat growers, it seems, could send to England alone, out of the surplus of their produce, wheat to the value of forty millions of dollars annually, and to provide for them a market of consumption to this extent, they consider the ruin of the British agricultural interest of minor consideration; if we received grain from America alone to the value of four or five millions sterling annually, there are in Europe four or five nations, which would naturally expect from us acts of equal generosity. It would be rather expensive, however, for Great Britain to pay at least twenty millions sterling annually for this character of generosity, amongst foreign nations; indeed we rather suspect that insanity would soon be substituted for generosity by the American gentlemen themselves. But the American agriculturist it seems intend speedily to compel a relaxation in our corn-laws, else our trade with them will be destroyed. Iron, woollen goods, glass, in short every article of British manufacture are to be interdicted, and the ruin of England is to be the necessary consequence. From these complaints however the British people may receive much instruction, for they will learn that, was the foreign corn trade entirely free, the ruin of our agricultural interest would be the inevitable consequence. The ruin of commerce would speedily follow that of agriculture, and the specie and wealth of this great empire would soon afterwards be exhausted, and universal distress and turbulence would reign amongst the people now generally so prosperous and contented with their condition in life. From Southern Europe the information received in course of post represents the crops as being most abundant as well in quantity as in quality. From the Black and Mediterranean seas considerable quantities of wheat will be received here before the close of this year, and this quantity will be increased by the fact of a large crop having been secured in France, in excellent condition. From Poland, and indeed from every other corn district on the continent of Europe, the news is equally satisfactory, and should we want supplies, we will receive them in abundance, so long as specie and credit are to be found here. From the Baltic ports large shipments have already been made, and many more will yet be made in consequence of the present reductions which has been brought about in the rates of duty payable on importations. If September only prove favourable, however, for securing the remainder of our crop at home, we doubt much whether these latter speculations will be very profitable.

CURRENCY PER IMPERIAL MEASURE.

Aug. 24.			
	Per Qr.		Per Qr.
WHEAT, Essex and Kent, red ..	72 71	White	72 78 84
Suffolk and Norfolk ..	70 72	Do	74 78 82
Irish	80 80	Do	80 81
Old, red	74 78	Do	78 80

	Per Qr.		Per Qr.
RYE, old	36 38	New	41 48
BARLEY, Grinding 30 32 34 Malt ..	38 40	Chevalier	40 —
Irish	25 27	Bere	24 25
MALT, Suffolk and Norfolk	70 75	Brown	58 60
Kingston and Ware	68 70	Chevalier	70 76
OATS, Yorksh. & Lincolnsh., feed ..	27 30	Potato ..	29 32
Youghall and Cork black	26 27	Cork, white ..	29 31
Dublin	27 28	Westport ..	29 31
Clonmel	29 30	Limerick ..	29 32
Londonderry	29 30	Sligo ..	29 31
Newry	30 32		
Galway	28 24		
Waterford, white	26 28	Black	26 27
Scotch fowl	30 32	Potato ..	32 34
BEANS, Tick, new	40 44	Old	44 48
PEAS, Grey	40 43	Maple	40 42
White	40 43	Boilers ..	44 45 48
SEED, Rape	30l. 32l.	Irish	25l. per last.
Linseed	41 46		
English Red Clover, fine, 70 ..	80 90	per cwt.	
White	68 74		
Mustard, White 11 12 ..	brown 18	20 per bush.	
Tares, old	44 —	new 60	68 per qr.
FLOUR, Town-made 62 — Suffolk 52	54	per sk. of 280 lbs	

FOREIGN GRAIN AND FLOUR IN BOND.

WHEAT, Dantzic	56	60 65
Hamburg	53 58	
BARLEY	22 24	
OATS, Brew	24 27	Feed ... 21 24
BEANS	32 36	
PEAS	36 40	
FLOUR, American, per brl	32 34	Baltic .. 32 34

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, Aug. 21st, 1840.		AVERAGES from the corresponding Gazette in the last year, Friday, Aug. 23, 1839.	
WHEAT	s. d. 72 4	WHEAT	s. d. 71 1
BARLEY	32 4	BARLEY	38 4
OATS	30 5	OATS	25 11
RYE	40 0	RYE	47 6
BEANS	46 11	BEANS	41 10
PEAS	44 8	PEAS	30 8

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Week ending						
July 10th ..	68 0	34 8	29 5 35 8 45 8	44 10		
17th ..	60 6	33 11	28 2 30 4 46 1	46 1		
24th ..	71 4	38 8	28 10 38 8 45 11	45 6		
31st ..	71 11	38 8	29 6 35 11 46 1	46 0		
August 7th ..	72 10	38 0	30 3 37 4 45 11	45 11		
14th ..	72 4	32 4	30 5 40 4 46 11	44 8		
Aggregate Average of the six weeks which regulates the duty	71 1	38 5	29 2 36 10 46 3	45 6		
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London	0 8	12 4	3 3 15 1 1 0	2 0		
Do. on grain from British possessions out of Europe	0 6	2 6	3 6 0 6 0 6	0 6		

PRICES OF HOPS.

BOROUGH, Aug. 24.

The good grounds in Mid-Kent are going on pretty well in general, though mould is showing itself at places. The diseased grounds are gone past all recovery. Duty 25,000*l*. One pocket of New Hops has been at market, and sold for 16*l*. 16*s*.

Sussex, Pockets, 1839	£7 7	0 to £9	0 0
Kent do.	8 0	0	10 10 0
Mid. Kent, do.	9 9	0	12 12 0
East Kent, do.	9 9	0	12 12 0
1838's	6 6	0	7 7 0

DISTRICT REPORTS.

From all the Hop districts we have a deplorable account of the damage done by the late gale of wind;

many planters affirm that it was quite as bad as the visitation we had of a similar kind in 1833. Mid-Kent, where the Hops appeared most promising, has suffered much in consequence. Hops will be hops again at 20l. per cwt.; and it is now very doubtful whether the duty will reach 20,000 this season. It is feared, unless we get some sunny weather, that the quality will be bad, and the hops light, wanting condition.

PRESENT ESTIMATE OF DUTY.

Kent	18,000
Sussex	1,500
Farnham and Worcester ..	1,500
Kingdom	1,500

22,500

HAWKHURST HOP FAIR, Aug. 11.—This annual fair took place here to-day, and we fear but little business of any kind was done. It may be considered as one of the first fairs in the year, at which, generally speaking, anything like a probable estimate of the hop plantations can be ventured on, but the present appearance of the hop gardens in this and the adjoining parishes is such as to leave little room for speculation as to the quantity likely to be grown, for one and all (except the very large growers) gave it as their opinion that the generality of the small planters would scarcely get enough for their own consumption. The duty was called 40,000l., but we really begin to suspect that it cannot now realize any thing like this amount. The prices of Weald of Kent hops varied from 6l. 10s. to 7l. 10s. per cwt.

SEED MARKET.

Aug. 24.

The demand experienced for Cloverseed in bond some time since has entirely subsided, and quotations are now perfectly nominal. Linseed maintains its previous high value. The price of Rapeseed remained unaltered. New white Mustardseed may be quoted from 12s. to 15s., and brown from 18s. to 23s. per bushel.

Linseed, English, sowing	55	60		
Baltic	—	—	crushing	48 55 per qr.
Mediterr. & Odessa	48	56		
Hempseed, small	34	36	large ..	38 40
Coriander	10	16	old	18 — per cwt.
Mustard, brown, new ..	18	23	white ..	14 15 pr. bush.
Turnip Seed, new Swedes ..	—	—		10 18
Trifol	10	23	fine new	25 30
Rapeseed, English	30l.	32l.	foreign	28l. 30l. per last.
Rye Grass, English	30	42	Scotch	18 40
Tares, winter	12	15	Spring ..	—
Large, foreign	0s. 0d.	0s. 0d.		
Clover, English, red	60	60	white	48 60 per cwt.
Flemish	40	60	do ..	45 48
New Hamburg	52	58	do ..	45 60
Old do	55	60	do ..	—
French	50	56	do ..	—
Old do	40	50		
Canary, new	85	90	extra	95
Caraway, old	50	52	new	50 52

WOOL MARKETS.

BRITISH.

Aug. 24.

English Wool remains stationary as to prices—the apprehensions for the state of the harvest excited by the very unfavourable state of the weather which prevailed the beginning of the week, and the unsettled state of Foreign affairs, and the high price of corn, probably producing averages high enough to induce the holders of foreign grain to let out the bonded corn, so as to require the precious metals, has caused a dull demand for Wool, and prices of various sorts barely maintain former rates, and although a fair attendance of buyers yet Colonial and other Foreign Wool are the only things moving off, unless it is at a loss to those who bought fleeces from the farmers in July, which with the attendant expenses of collecting, &c., are indeed ruinous. The present appearance of a return of fine weather, however, it is to be hoped and expected, will brighten prospects a little and cause an improvement in demand, but as Foreign Wool is a turn the easier, it is to be

feared the grower and dealer in English wool will not continue to realize the present prices, which are as per last week's currency.

	s.	d.	s.	d.
Down Teggs	1	2	to 1	3
Half-bred Hogs	1	1½	1	2½
Ewes and Wethers	0	11½	1	0
Flannel do	1	0	1	2
Blanket Wool	0	5	0	7
Skin, Combing	0	10	1	1

LIVERPOOL, August 22.

SCOTCH.—There continues to be a fair demand from the trade for new laid Highland Wool as it arrives, really good combing parcels fully realise our quotations, but purchases are made with very great caution, on account of the very unsettled state of the weather. There continues to be a very limited inquiry for both crossed and Cheviot Wool, most of the dealers and manufacturers having for the present supplied themselves direct from the farmers.

	s.	d.	s.	d.
Laid Highland Wool, per 24 lbs..	7	6	to 8	0
White do. do	9	0	11	0
Laid Crossed do. unwashed ..	8	6	9	6
Do. washed do	9	0	10	6
Do. Cheviot unwashed do	9	0	19	½
Do. washed	11	6	15	0
Cheviot white	21	0	24	0

FOREIGN.

THE WOOL TRADE, LONDON, THURSDAY EVENING.—Since the conclusion of the public sales we have to notice no alteration in price. The imports are now becoming very limited. In the week ending to-day they have been 367 bales, comprising 109 bales from Spain, 181 from Germany, 53 from Russia, and the rest from the Cape of Good Hope. Accounts from Sydney of April last, notice an auction of wool at which 20 bales realized 1s. 6½d. per lb., 11 bales 1s. 6¼d., and one bale in the grease 7d. per lb. The total imports of Colonial wool into London, Liverpool, Hull, and Goole, this year, have been 25,701 bales, and of Foreign 73,739 bales.

IMPORTS OF WOOL.—Quantity of wool entered at Hull for Home Consumption, during the week ending August 13.

From Hamburg	851,241 lbs.
Odessa	40,000
Copenhagen	36,000
Stockholm	1,500

Total

928,741

Wool on which the Home Consumption Duties have been paid at London, Liverpool, Bristol, and Hull, during the last week:—

WOOL.	This Year previous to last week.	Same time in the last Year.
Spanish, London ....lbs.	1,131,516	1,119,424
Australian, do	8,173,959	8,055,441
Other sorts, do	8,141,795	8,850,910
Liverpool	0,475,985	7,870,485
Bristol	31,302	23,300
Hull	6,905,788	11,352,382

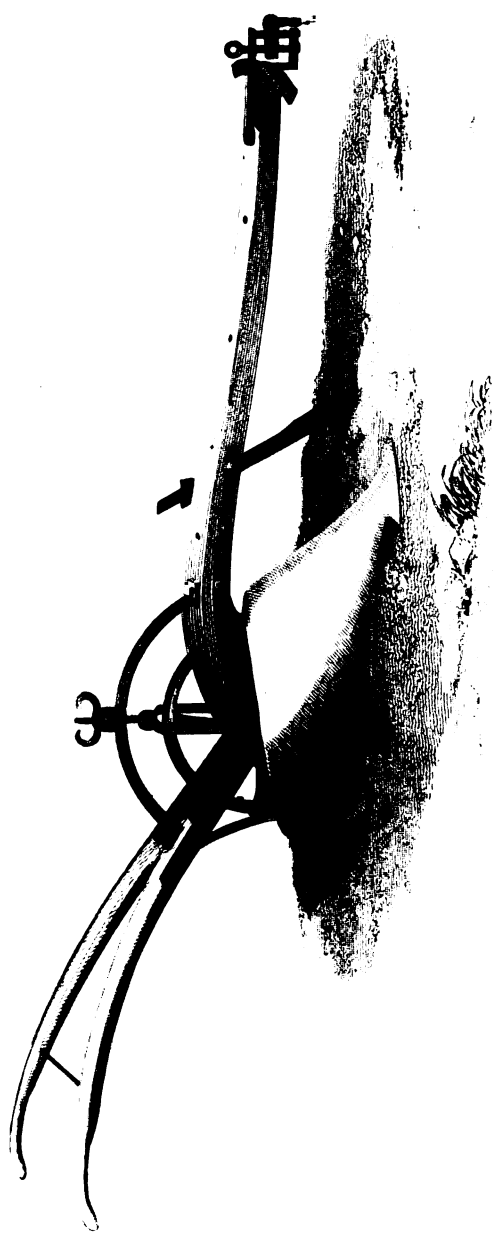
MANURES.

Subjoined are the present prices of several sorts of manure:—

Bone-dust, 21s. per qr. of 8 bushels.
Half-inch ditto, 20s. per qr. do.
Rape-dust, 6l. 15s. per ton.
Ragt, 4l. to 4l. 10s. per ton.
Graves, 5l. to 5l. 10s. per ton.
Gypsum, 38s. per ton.
Salt, 2l. 5s. dirty, 2l. 15s. clean, per ton.
Carbon, 12s. 6d. per qr.
Soap ashes, 10s. per ton.
Artificial Manure, 12s. per qr.
Polltevin's Patent Disinfected Manure, 13s. 6d. per qr.
Nitrate of Soda, per cwt.—18s. 6d.
Nitrate of Potash or Saltpetre, 27s. to 28s. 6d. per cwt



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THE FARMER'S MAGAZINE.

OCTOBER, 1840.

No. 4.—VOL. II.]

[SECOND SERIES.

PLATE I.

The subject of our first plate is the short-horned yearling heifer "MERMAID," the property of R. M. Jaques, Esq., of St. Trinians, Yorkshire, for which a prize of Ten Sovereigns was awarded at the second Annual Meeting of the Royal Agricultural Society of England, convened at Cambridge on the 15th of July, 1840.

PLATE II.

PALMER'S PATENT PLOUGH.

[The following is the description of this Plough given by the Patentee.—ED. F.M.]

The Construction of this Plough is peculiarly novel, unlike any other ever offered to the Public; possessing greater advantages in every point of view,—its adaptation to various soils and seasons. The body of the Plough moves upon a wheel, following the track of the share, instead of sliding and compressing the earth, so much complained of in other iron Ploughs, consequently friction is reduced and facility given to its action, and a considerable saving of labour to the horses is thereby effected. The wear and tear in materials is also reduced. The ploughman has a thorough command over his plough, as it works easy in hand, and is enabled to set it deeper or fleetier instantaneously, as hard and tender land, wet and dry seasons, may require; and one particular feature in this Plough is, it will plough the hardest land, an advantage much appreciated, as one dry ploughing is said to be worth two wet ones. The greatest nicety in the draught is assisted through a peculiarly constructed hake, no way likely to get out of order; indeed every day's information affords to the Patentee encouragement to hope these Ploughs, from their proved utility, will supersede all others; as every attention will be paid to the various mould boards or breasts required or suggested from time to time, and in point of economy one sight will satisfy on that head, being freed from all those variety of parts such as chaps, slides, side caps, keeps, loops, wedges, punches, &c., &c., expensive to employers, and troublesome to men.

ON THE PLOUGH.

IN ANSWER TO MR. DANDY HARWOOD,
BLAXHALL.

SIR,—In the conclusion of your remarks on the Kentish turnwrist plough, you say that if a turnwrist plough can be produced, which requires no greater power to propel it than others, and which performs its work equally well, it is equally

OLD SERIES.]

worthy of notice, as the two horse fixed wrist plough.

Now sir, in answer, I beg to inform you that I have, through the kind assistance of Messrs. Ransome, made an iron turnwrist plough, which is drawn only with two horses, and have tried its draught in competition with four other ploughs, the two-horse fixed wrist plough included, and herewith send the particulars, Mr. Ransome being present with his dynamometer.

T

[No. 4.—VOL. XIII.]

Ploughing a turnip fallow that had not been ploughed since Christmas, on April 24, 1810, eight inches deep.

	cwt.	qrs.	lbs.	
Little two horse turn-wrist.	draught	4	2	0 10 turn to the rod
Two horse patent fixed wrist plough.	do.	4	3	0 11 do.
3 horse turnwrist. (Messrs. Ransome's)	do.	5	2	0 0 do.
Kentish four horse turnwrist plough.	do.	5	2	0 0½ do.
Norfolk wheel fixed wrist plough with standers.	do.	4	1	0 11 do.

In order to ascertain whether my little two-horse turnwrist plough would prove equally as light to break up, we took all the ploughs in a rye field fed off, to be ploughed up for turnips. The result as follows :—

	cwt.	
Kent four horse plough.	draught.	6½
Little two horse turnwrist plough.	do.	5½
Ransome's 3 horse do.	do.	5½
Patent two horse fixed wrist do.	do.	5½

8 inches deep.

The soil is dry, a mixture of chalk and loam with flints, which renders the patent fixed wrist ploughs useless, they not being able to contend against the flints, consequently they are thrown out of their furrow repeatedly, and cannot maintain an even depth, nothing but a wheel plough will contend against our flints.

Now sir, by this statement, which Mr. Ransome is a witness to as well as myself, I contend that we have accomplished a Kentish turnwrist plough to go with two horses lighter than your *two-horse fixed wrist plough*, and the lightest going plough was the Norfolk wheel fixed wrist plough, but it did not do its work near so well as our little two horse turnwrist plough, and the patent two horse fixed wrist plough could not keep its depth on account of the flints, and consequently did not do its work well at all. Now sir, as these statements are true, and facts are stubborn things, I beg to deny that your plough is capable of ploughing up everything but a prejudice, and that I am fully convinced from practical experience, for I have now tried almost every plough on our land, in fact, every plough that is at all likely to plough it, that our Kent turnwrist plough is the most complete instrument for ploughing our land, and that we can do it with two horses better than any other plough can do it, (your plough not excepted). The prejudice in Kent is sticking to four horses and a great unwieldy plough, with a man and a mate all half asleep, which requires great exertion to turn, where my little turnwrist shall go by them, with two horses contending against each other for speed, and a man behind with reins, altogether doing their day's work with greater ease and quickness. Four horses are perfectly useless, almost at all times with these big ploughs, and I have no doubt the time will come when I shall be able to plough up their prejudice (being a Kentish farmer) sooner than it would be ploughed up by a man and plough of any other county. This is the only prejudice our Kentish farmers have, in having four horses and a large plough to plough all the year round, whereas I plough with two horses and a small plough all the year round, excepting in very stiff land, or broadsharing, (a little plough with a broadshare would not keep in the ground, and greater strength is wanted to broadshare, or breaking up in the summer after wheat,) then four horses and a large plough is wanted. I have thought it right to write this, to let you know that we are not all of us prejudiced in four horses, nor in our

ploughs, but find there is no other instrument yet produced, that can plough our land properly.

Messrs. Ransome have one of our turnwrist two-horse ploughs now at their foundry, to make a few improvements upon, which you can see on application, to be a perfect little instrument far surpassing anything ever yet invented, and I have not the least doubt, after a few years, our Kentish farmers will see the great advantages derived by ploughing with two horses instead of four, with the same implement, which now is the only prejudice the Kentish farmers can be accused of.

I am, Sir, your obedient servant,
 Kent.
 ADDIS JACKSON.

ACTION OF MANURES.

(FROM THE CULTIVATOR.)

Of the importance of manures to the cultivator of the soil, there seems to be but one opinion. The practical man and the theorist both are compelled to admit, that a plentiful supply of manure is essential to success in farming; and experience proves that few things are more true than the Flemish maxim, "without clover no cattle, without cattle no manure, without manure no grain crop." The nature of the action of manures, or the manner in which they produce their good effects, does not, however, seem to be equally clear with the points before mentioned; at least, there seems to be a greater diversity of opinion on this topic, a thing perhaps allowable when it is considered that it is less a matter of direct observation than the others, and that even men of science do not appear to be perfectly agreed in all their conclusions respecting the laws of vegetable nutrition.

To produce vegetation, three things seem to be indispensable; moisture, warmth, and a communication with the earths. Deprivation of the two first is certainly fatal to plants, and though where the two first are present and the last absent, yet the perfection of such plants is never complete, and fruits are never formed. Thus an acorn, suspended by a string over a glass of water at a proper temperature, will vegetate, and while the roots seek the water the young plant will extend upwards, yet the growth will continue no longer than the substance of the acorn affords nourishment to the young shoot. Fill the glass with earth, and if watered, the growth will continue so long as nourishment and space are afforded. It would appear then to be clear that the union of these three things is necessary to the growth and perfection of plants.

There was a time when it was believed that plants derived their support entirely from water, and that if a suitable supply of this was provided, it was all that was required, and that the use of the earths was only to serve as a reservoir or repository of this fluid for the use of the plant. This idea of water being the sole nourisher of plants, may be traced through Greece to Egypt, an origin, or opinion, not surprising among a people who yearly witnessed the fertilizing effects of the waters of the Nile, on the apparently barren sands of that country. The large quantity of sediment brought down by the river, appears to have been overlooked in their estimate of fertilizing causes, though it is now well understood that of all substances such deposits are the most valuable. This opinion was revived and apparently confirmed in the 17th century, by the experiments of Boyle and Van Helmont. The wil-

low tree of the latter, planted in a tight box, lined lead, the earth and tree carefully weighed at planting, watered with rain water only, and after a few years growth, both the earth and tree again weighed gave a gain, which, when it was ascertained that the earth had diminished only a few ounces, was deemed conclusive as to the nutritive power of water. It remained for later philosophers, by the analysis of rain, and other water, to show that the substances required in the growth of such plants were contained in abundance in the fluids employed.

When water, made chemically pure, is employed in that state to promote the growth of plants, a failure is the certain and inevitable result. That able experimentalist Cuthbert Johnson, has varied his experiments in every form, and always with the same termination, the death of the plant, in a longer or shorter period. Dr. Thompson was equally foiled; he finding that plants so treated vegetated only for a short time and then failed, never perfecting their seeds. Other experimentalists have been equally unsuccessful, and the theory now more rationally adopted, is, that water is only valuable as a solvent for the nutritive matter required by plants; in other words it is only useful as a liquid manure. Some plants of the bulbous rooted kinds, that are made to flower in water, such as the tulip and hyacinth, are obliged to be planted in the ground every other year, or they refuse to flower, or even, finally, to vegetate. This is accounted for by the fact that the store of nutritive matter provided by nature in the bulb, and drawn from the earth, was exhausted by vegetating for one season in water.

It has been supposed by some, the earths most common in good soils would, if watered with pure water, support vegetation. But the experiments of M. Giobert proved the fallacy of this supposition. He mixed silica, alumina, lime, and magnesia, in the proportion in which they are found in the best soils, and then in vain attempted to grow plants where pure water was used. This was not the case when water impregnated with animal and vegetable matter, or that from a dunghill was used, as the most luxuriant vegetation ensued. All the efforts to induce plants to appropriate to their growth matter in any other state than that of solution have failed. The finest and most impalpable particles of matter are rejected equally with the coarsest. Davy ineffectually tried charcoal, reduced to the finest possible state; and Chaptal and Johnson equally failed with the earths, saline substances, and with other organic matter. All nutrition, then, in plants, as well as in animals, is performed by substances in solution, or aëri-form; and it is hence also evident, that manures are only useful to plants when presented to them in a liquid form, or when they assume that form in the earth by combination with water.

We have before expressed our full conviction that all vegetable growth, or nutrition, is the result of a chemical action not dissimilar to that of the voltaic battery, or the agency of electro-magnetism. Of the existence of such electro or voltaic currents, vegetation itself furnishes the most conclusive proof. To this the vegetable sensibility of the mimosa must be attributed; and the currents as they exist in the fluids of plants, may, under the microscope, be distinctly observed in those plants with transparent cuticles, such as the *Caulina fragilis*, or *Tradescantia virginiana*. We further infer this action from the general similarity existing in the functions of vegetables and animals, and their nutritive powers. In animals the nervous system furnishes conclusive evidence of such agency, and the organization of the plant may not unreasonably be referred to the

same cause. "Perhaps," says Professor Henslow, "until the contrary is proved, we may consider the addition of sensibility, to the living principle, as the characteristic property of animals; a property or quality by which the individual is rendered conscious of its existence, or of its wants, and by which it is induced to satisfy these wants by some act of volition." Dr. Green, in quoting this passage from Prof. H., goes farther, and says, "We are inclined to the belief, however difficult it may be to demonstrate it, that a quality strictly analogous in its results, to this property in animals, belongs to vegetables."* Every new truth in vegetable physiology goes to confirm our previous opinions of the nature of vegetable nutrition, and develop the rationale of manures. The earths will not cease vegetation, be they ever so nicely proportioned; water cannot support the plant, when used in a pure state; the salts of manures, constituting their most efficient part, are fatal to plants in a concentrated form, or when present in too large quantities; but when these are combined, the growth of the plant they are brought to act upon, is certain and rapid. It is scarcely possible there should be a clearer or more beautiful illustration of the nature of the chemical action necessary to the growth of plants than this combination affords. In this case the different earths constitute the battery for the generation of the voltaic current, the particles constituting the plates of the great machine of nature, and the finer the earths are made the greater the number of pairs, and consequently the more active in their results. In itself, however, this battery is powerless; it is only when the plates are plunged in an exciting fluid, when water containing the salts necessary to produce this action is applied, that this current, so indispensable to the growth of plants, indeed without which no vegetable (and perhaps no other) organization is possible, is fully developed. To us this philosophy of vegetation appears extremely simple and natural, explaining more satisfactorily than any other theory, the action both of vegetable and mineral manures.

If the plates of zinc in the common battery are corroded or destroyed, or those of copper rendered worthless by continued action, it is clear these defects must be supplied before the desired effect can be produced. So if any of the necessary earths be absent, or if they have been exhausted by cultivation, a healthy vegetation cannot be expected, until this deficiency is remedied. And if the proportions of earths are ever so perfect, if the exciting agents, the salts and the water, are absent, there can be no growth; the current, which alone carries into circulation the substances that go to the formation of the plant, cannot exist. In this way only, can the prodigious fertilizing powers of some liquid, or dry manures that when applied to the soil become liquid, be satisfactorily accounted for. Urines, poudrette, and the sewerage water of large cities are instances of this kind of agents.

But whatever opinion may be entertained of the theory here advanced, it cannot be disputed, that independent of the substances more particularly necessary to excite voltaic action, there are few articles so rich in the materials required by plants, as what are termed the liquid manures, or the drainings of the barn-yard or the stables. This fluid contains the most essential of the salts employed in accelerating vegetation, and their loss to the farmer

* See an ingenious paper on "Vegetable Organography and Physiology," in the 77th No. of Professor Silliman's Journal. The instances given in proof by Dr. G., are not satisfactory to us.—*Eds. of Cult.*

is irreparable. There is some little difference in the constituents of the urine of different animals and of man, but the analysis of one, and we select that of the cow, by Prof. Brande, will give a sufficiently accurate notion of the constituents of this substance, and the loss occasioned by not converting it to its proper use in promoting vegetation.

Water	65.0
Urea	4.0
Phosphate of Lime	3.0
Muriates of Potash and Ammonia	15.0
Sulphate of Potash	6.0
Carbonates of Potash and Ammonia	4.0
Loss	3.0
	<hr/> 100.0

Barn-yard manure, after it has been deprived by solution, by washing, and by evaporation of these essential animal and vegetable salts, is very little better than common vegetable mould. Its efficiency in promoting vegetation is gone with the exciting agents it has parted with; the remainder is only the earths which have formed the frame-work of the plants, consumed or decomposed, useful indeed, but wholly wanting in the power they once possessed.

To show the difference caused by the presence of these agents in enabling plants to take up the matters necessary for their perfection, we give the following from a statement of Prof. Johnson:

"I caused beans to vegetate under three different circumstances; the first were grown in distilled water; the second were grown in sand and watered with rain water; the third were sown in rich garden mould. The plants thus produced when accurately analyzed, were found to yield the following proportion of ashes:

Those watered with distilled water	3.9
Those " with rain water	7.5
Those grown in garden mould	12.0"

Garden mould, or soil, more than almost any other abounds in these prominent elements of fertility, and the above experiment proves conclusively the importance of their presence, where luxuriant vegetation is wished or expected.

Liquid manure, then, may be considered one of the most valuable agents in the production of crops. But its use as practised on the continent of Europe, and in China, cannot be expected here; it has as yet scarcely been introduced into England, though where it has been tried its benefits have been most decisive. The additional labour required in the German or Flemish use of this manure is so great that their system unless in some limited cases, cannot be expected here; the cost would exceed the income. There is no necessity, however, for the frightful waste of this valuable material that we witness in every part of our country. Instead of this fertilizing fluid being converted to a profitable use, the great object, with multitudes of farmers, seems to be, how they shall get rid of it in the easiest manner. Ditches are constructed from their yards or stables to the highway, and the neighbouring brook or river, to carry off the precious article, as though it was feared the surest means of fertilizing the soil, or producing great crops, would accumulate too rapidly.

It is to the accumulation of such salts that the sewerage of cities owes its fertilizing properties, when employed for the purposes of irrigation. A striking instance of this power appears in the astonishing increase of the grass crops on the water meadows near Edinburgh since the water from the drains of that metropolis have been applied to their irrigation. This result will not be surprising to any one

who reflects on the composition of such sewerage; "its endless mixture of organic matters, its soot, its carbonate of lime, its decomposed animal matter, and above all its urine," combine to produce one of the most active stimulants of vegetation known.

But if farmers cannot at present in this country be at the expense of the vats for converting the whole or the most of their barn or stable manures into liquid manures, or the costly apparatus for its distribution, they can do much to prevent its waste by furnishing the means for its absorption, where there is an excess, as there usually is in the vicinity of the yard or stables, and thus save it for the use of the soil. To do this it is necessary, in the first place, that some cheap and easily constructed reservoir should receive these drainings when they are formed. In most yards a hollow may be made, without lining, if the soil is retentive, but if porous, with a lining of clay and imbedded pebbles, and this, if filled with swamp earth, the sandy wash from the roads, or even common earth, will absorb large quantities of this liquid manure, and thus obtain a fertilizing power, equal, if not superior, to that of common barn-yard manure, treated in the ordinary manner. These earths brought to the yard, become thoroughly impregnated with the salts and other fertilizing matters of the yard, and thus preserve for the farmer what would otherwise be lost to his use. In many cases where the cattle and sheep are folded in open yards, a covering of vegetable mould, swamp earth, &c., spread over the yard after it has been cleared out, to the depth of a foot, will prevent much waste by its absorbing power, and being thoroughly mixed by the feet of cattle with the ordinary manure, will be found in the spring when wanted for use on the field a most valuable manure. In this way, some farmers add to their stock of fertilizing materials some hundreds of loads annually. One of the most successful farmers of New-England, Mr. Clark of Northampton, has pursued this system to a considerable extent, and with marked benefit. Others also, have tested its use, and speak highly of the practice, as corresponding perfectly with the theory.

Various opinions have been entertained of the utility of piling barn-yard manures when not wanted for immediate use, or the propriety of placing them under cover. It not unfrequently occurs that the stable or yard manures made during the winter, are not required for the spring crops, and are reserved for those to be sown in autumn. The question now arises, how shall this manure be disposed of during the summer? If it remain spread over the surface of the yard exposed to alternate sun and rains, it appears clear that the most valuable parts of it, the salts and animal part, must be lost in such a course. If piled, and left without farther care, it is very apt to be damaged by excessive heat in the fermentation, and the consequent escape either in the form of gas, or that of a thick black liquor from the base of the heap, of these essential agents of fertility. Some farmers, aware of these disadvantages, have piled their manures, but in such a way as to prevent the loss or escape of any of these valuable constituents. With a little extra labor, added to that required for ordinary piling, they have converted the contents of their yards into a proper compost, greatly increasing the quantity, while all the valuable qualities are retained. This is effected by placing the fresh manures in alternate layers with such earths as we have noticed before, these earths becoming impregnated with the evolved gases, while they at the same time absorb and retain whatever liquid matter may escape from the dung during the process of fermentation. The height and breadth of these mounds must depend

on the quantity of manure to be treated in this way, and the facilities for piling it at the command of the farmer.

Perhaps the most satisfactory test of the relative value of manures, may be found in the series of experiments instituted at the request of the Prussian government, by Professor Hembstadt of Berlin, and repeated with every kind of variation, by Professor Schubler, with the same results. The following table, prepared with great care from the record of those experiments, will show the value of the several manures named, on soil of the same quality or productiveness.

"If the soil without any manure yield a produce of three times the quantity of seed originally sown, then the same quantity of land when manured or dressed with herbage, grass, leaves, &c., will yield

5 times the seed sown.

When manured with cow-dung.....	7
With pigeon's dung.....	9
With horse dung.....	10
With human urine.....	12
With sheep dung.....	12
With human manure or bullock's blood.....	14

Thus if before manuring, an acre of land with two bushels of seed, would give a produce of six bushels, the same acre manured with urine would give twenty-four bushels; and if with bullocks blood, twenty-eight bushels. Experience shows that with roots and grasses the difference will be about as great on soils of the same quality; and these facts evince more conclusively than any reasoning can, the value of such manures, and the necessity there is of the farmer's making the best possible use of them, if he would succeed in his occupation.

THE DERBYSHIRE FARMS.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—I am the occupier of a considerable farm in the hilly part of North Derbyshire. We have some good grazing and mowing lands amongst our hills, and our rents are not apparently high. We have also good markets for much of our produce; but notwithstanding these seeming advantages, the greater part of the farmers in these hilly districts who have no other incomes than the profits of their farms, are poor.

It has long been my opinion that we must have some heavy disadvantages to contend with, that our brother farmers in the southern counties were in a great measure exempt from, and the object of this letter is to point out some of them.

The first that I shall mention is the shortness of our summer season, and consequently the length of our winters. On this account we are obliged to appropriate a far greater part of our farms for the supply of winter food for cattle, than is needful in the southern counties. And with respect to our summer grazing, it is generally the middle of June before our pastures can be fully stocked, and by the middle or end of September, frosty nights become so prevalent, that both grass and cattle cease to grow, except in some sheltered situations; there is therefore not time to feed a large sized Yorkshire beast, except it be bought in half fed, and then the price is high, and being obliged to be sold out in September or October, when beef is at its lowest

price, the profit for grazing is but small. It is not so with graziers in the southern districts, they can buy in a great part of their feeding stock in February or March, and by the help of a little hay in those months, can keep their cattle growing, so that by the end of June they are ready for the butcher at a time when beef is high in price. They then buy for a second crop, and not being subject to our severe night frosts can keep them growing until Christmas, when the price of beef again gets higher, so that had we our grazing lands rent-free, they would still have an advantage over us. But there is another disadvantage which our hilly farms lie under, that is sufficient of itself to account for our poverty without any other. It is a truth which few will deny, that grass, corn, tares, and many other things which the earth produces, have a natural tendency to grow up perpendicular or upright. This being admitted, it will follow as a truth equally clear, that whatever may be the surface of a farm as to hills and dales, or whatever may be its admeasurement, its produce can be no more than what the flat area or base upon which the farm may be said to rest would produce.

To make this appear more clear to my brother farmers amongst these hills, and others whom it may concern, I would suppose two thin boards to be cut to an equal size, say three feet long by two feet wide; lay these boards one exactly upon the other upon a level table, then mark the upper board into squares, or fields, so as to represent a farm of any given quantity, say 100 acres, and the under board would represent the flat base upon which the farm rested, and would likewise be 100 acres, but raise one edge of the upper board so as to represent the farm as being sloping, or on a hill side, it would still measure 100 acres, but its power of production would be decreased, inasmuch as you would have reduced the base upon which the farm rested, and the higher you raised the edge of the board the more would this be the case.

Again, suppose the two boards laid flat on the table as before, they would then as before, both represent 100 acres; lay upon the upper board or farm, a number of wash basins at short distances one from another, and with their bottoms upwards, it might then be said to represent the farm as covered with hills and dales, such as we have many in this district. Send a land surveyor to measure this farm, he would take his lines over hills and dales in the different parts of the farm, and the result of his admeasurement would probably be 130 acres.

At this measure it is let, and the tenant has to pay rent, taxes, rates, and in many cases wages also, according to this admeasurement. But what is the produce? Why the produce is no more, nor can be than the produce of 100 acres, which the flat surface of the board or farm represented before these basins or hills were put upon it.

What I have here stated I believe to be the chief and true causes of our poverty.

A NORTH DERBYSHIRE FARMER.

FARMER'S INSURANCE INSTITUTION.—

By the plan of Deferred Annuities just announced by this society, a single deferred annuity is made, not only to answer the same object, but to equal in amount the entire sum of all the advantages heretofore only obtained by the middle and industrious

classes by separate investments in Savings' Banks, Benefit Societies, and Loan Banks.

1. A small yearly or weekly contribution will secure the most ample return for after life. Thus: the payment of 2*l.* 12*s.* per annum (1*s.* a week) beginning at 20 will at 65 entitle the party to an annuity for life of upwards of 47*l.*

2. Two-thirds at any time will be lent on the deposit of policy, being a fund always available during sickness or want of employment.

3. The whole or any part of the money will be returned to the policy holder whenever required, or to representatives in case of death before the stipulated age.

NOTES OF AN EXPERIMENT WITH GYPSUM.

My farm, on which the experiment was made, has long been under clover. It is and has been for the last twenty years, carried on upon the four course system. It is now impossible for a full crop of red clover to be grown upon it. In order to remedy this, gypsum had been recommended by Davy, &c., which I determined to try. Last year I had a piece under red clover. It is the best piece of land in my little farm, and had been limed for the crop of turnips the two years previously. The plant was generally well set after the harley was reaped. The soil is light loam subsoil, a porous gravel, and perfectly dry.

I staked a piece out in March, 1839, and applied grossly powdered gypsum at the rate as near as I could guess of about three bushels per acre.

I watched the plot narrowly through the summer but it partially failed like the rest, nor could I see any greater vigour in the plants which remained, nor could I perceive the slightest difference in the second crop upon the gypsum piece, nor any difference in the subsequent crop of wheats. I ought to have stated that the gypsum was not calcined.

On a previous occasion a friend presented me with a cask of chemically prepared gypsum (*sulphate of lime*). I laid it on in May, on a wet morning at the rate of about three bushels per acre, soil sandy—subsoil, white sand with an occasional stratum of gravel. I could not perceive the slightest improvement in the crop over that where no gypsum had been applied.

MATTHEW MARMADUKE MILBURN.

ON SALT AS MANURE.

Kent, Sept 20, 1840.

SIR,—Will you have the goodness to inform me in your next publication, whether Salt used upon ploughed ground in a fruit plantation will injure the fruit trees or not, also what quantity of that article is requisite per acre in stony ground.

Your obedient servant,

A YOUNG FARMER.

“The quantity per acre for strong fallow ground, is from sixteen to twenty bushels per acre. So far from injuring the fruit trees, it will promote their general health; the application of salt to apple orchards for this purpose is an old custom in Herefordshire—why does not our correspondent mix the salt with lime?—say 20 bushels of salt and 40 bushels of lime, mixed dry, and not spread on the land for three months?”—ED.

JETHRO TULL.

MY DEAR SIR,—It is now exactly a century since the death of Jethro Tull, the great father of the drill husbandry, a man whose services to agriculture have rarely been equalled, and never excelled. At this centenary anniversary of his death, might it not tend to the honour of the professors of that science, which Tull laboured so ardently, and so perseveringly to advance, if they were to commemorate his death by some agricultural meeting? For instance, by having a public dinner? The great English naturalist John Ray, had a similar tribute paid to his memory some few years since, by a public meeting of men of science, and ought not Jethro Tull's services to the cultivators of the soil of England to be remembered with equal gratitude? Such a meeting would not only do honour to the agriculturists of our country, but it would be another convincing proof that though Tull's contemporaries opposed and ridiculed all his efforts to improve the fertility of the land, yet that a succeeding generation, made wiser by experience, at last paid that tardy homage to his memory which true genius is ever sure eventually to receive. As there is no paper that circulates more widely amongst the leading farmers of England than your own, I beg leave through its pages to offer these remarks, and to express my willingness to co-operate in the best way in my power with those who may deem the suggestion worthy of being carried into execution.—I am, my dear Sir, yours faithfully,

CUTHBERT H. JOHNSON.

14 *Gray's Inn Square, August 20.*

DIBBLING MANGEL-WURTZEL.

SIR,—I and many of my neighbours dibbled in our mangel-wurtzel seeds in the first week in April last; they made their appearance very regularly, and advanced in growth rapidly, but I think I may say, one-fourth of them has run to seed. I should be really obliged if some of your many correspondents and readers would favour me with their opinion, through the medium of your excellent publication, of the cause which induces me to trouble them, to inform me whether they know from experience, that mangel-wurtzel seeds put into the ground at any particular period, is liable to run to seed, as ours have done? or whether it is imputable to some defect in the seed? or that the seed has been the produce of untransplanted bulbs? The sort we planted and prefer, is the yellow globe.

Now, as I have the pen in my hand, and as the wheat-sowing season is approaching, I will add a few words on that subject. I believe that the received opinion is, that the seed of corn of all kinds, should be obtained from a better soil and climate than that where it is to be sown. I know that my neighbours and I, in general, get a part of our seed-wheat from Bristol, and the sort preferred is the red Lammas, but it is found always to degenerate. Now, I entertain a notion, that we ought rather, as change of seed is found to be advantageous, to procure it from a colder and wetter climate, with the expectation that instead of degenerating, it would improve in quality and productiveness, and I have, (in consequence of having formed perhaps an erroneous opinion,) ordered seed-wheat from the west of Scotland. If you, Mr. Editor, or any one well qualified, would favour me with your or his thoughts upon the subject, you would very much oblige your regular reader,

E. H.

Haverfordwest, Sept. 3.

ON SMUT BLADDERS IN WHEAT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I read in your last number a sensibly written article on the subject of smut bladders in wheat, relative to which I beg your permission to make a few remarks. Many years ago an old gentleman communicated to me the result of an experiment which he made relative to smut in wheat: he procured some moderately clean wheat, and divided it into four portions, two of which he washed thoroughly, scrubbing it well with a broom, and changing the water several times, until the water as well as the wheat appeared quite pure, after which in its wet state, he blackened a portion of the wheat thoroughly with smut balls; this sample I call No. 1; he dried the surface of the other portion with new lime, No. 2; the other two portions were not wetted, but one part he smutted over, No. 3; and the other part remained in its original state, No. 4. These four samples of wheat he set by means of the dibble in the middle of a field, on separate ridges adjoining each other; the result at harvest was as follows:—The sample No. 1, produced nearly all smut balls. The sample No. 2, was quite free from smut of any kind. The sample No. 3, produced a large quantity of smut balls, and the wheat was blackened by it, but not so bad as No. 1. The sample No. 4, produced wheat with an occasional ear of smut of wheat, intermixed in a slight degree as is frequently the case. The result of this experiment appears to prove that smut is a disease introduced into the grain through the skin, and is of a similar nature to wheat that the small pox is to the human species, and that it may be, and most frequently is, propagated by inoculation, owing to the sound corn coming into contact with the smut. As a farther proof I may add that during near forty years' observation as a miller, I have generally found that when farmers persisted in setting their old stock of wheat when only a little smutty, the smut has kept increasing till they have changed their stock. I believe that the most smutty wheat which can be produced might be rendered free from smut by frequent washing and scrubbing in several waters, and the only advantage there is in the new slaked lime is, that it operates upon the skin of the grain as a caustic to destroy any virulence which may possibly remain. I know a farmer in this neighbourhood who purchases smutty wheat for seed when a good stock is offered him, not only because he can get it cheaper, but because he is of opinion that it is generally more productive than other wheat, trusting to his own good management in eradicating the disease which he assures his neighbours is only skin deep, although productive of such serious consequences unless removed by some kind of caustic; but this I think, on the whole, a dangerous experiment, for in eradicating the disease there is a danger of killing the patient,

A NORFOLK MILLER.

Sept. 17.

P.S. I recommend the farmers to turn their attention to the corn laws, with a view to the introduction of a fixed duty, rather than the present fictitious system of averages, which can only benefit the large capitalist to the injury of all other classes.

IMPORTATION OF FOREIGN GRAIN AND FLOUR.

[FROM THE HERALD.]

The following letter refers to some former remarks under this head in respect of imports of bread stuffs from the United States, and as coming from a practical source is deserving attention:—

"SIR,—In your paper of this morning the writer of your city article makes some observations upon the importation of bread stuffs from America, which seem to spring from entire ignorance or misapprehension of that important branch of trade. He talks of the impossibility of selecting the American markets in preference to those of the Continent in consequence of their high comparative standard. Having been somewhat engaged in this trade during the past year, I can testify that the American market is decidedly the cheapest of the two. I have purchased wheat at New Orleans, and the same has been done during the whole winter and spring, at 80 cents. per bushel, costing with the high freight of 1s. 4d. per bushel, but 37s. to 38s. per quarter laid down here. Flour has been also bought in large quantities at less than four dollars per barrel, freight about two dollars more, while even at the dearer markets of New York and Philadelphia the article has been selling at less than six dollars, and could be laid down at any port in England at 28s. per barrel. The figure your correspondent gives for the continental markets is much higher than this. Even with the impulse given to the grain markets of the States by the Great Western's news, the price of wheat at Philadelphia only reached 40s. per qr. freight and expenses to England, 5s. 6d. more.

"Were the importation of grain a constant trade, there is little doubt of the United States being our chief market. Their facilities for production and consumption are yearly increasing, the former far beyond their own wants, the latter beyond their own powers. Fitful and uncertain as are their exports of corn to this country, not a farthing of their value is returned in the form of specie, the whole of it goes in that of manufactures. The contrary is observable in our trade in grain with the Continent. The serfs in Poland and Prussia are not consumers of manufactures, like our descendants in the western hemisphere, and the growth of a trade with them must be slow and gradual. Were there any mode of establishing a steady trade with America in grain, under a moderate fixed duty, the farmers in this country would be certain to reap the advantage of a considerable advance in the price of wool, in the growth of which many are largely engaged, and which is so dependent upon American trade for its elevation of depression in value.

"Hoping that you can allow me a corner in your influential journal for these few observations, I remain, sir, yours respectfully,

"A LIVERPOOL MERCHANT.

Tithebarn-street, Liverpool, Sept. 14."

The writer should be quite clear about his own premises before he is so free in charging others with "entire ignorance." It is not denied, nor was it meant to be, that in particular periods of high prices here, wheat and flour might be profitably imported from America; but in the average of years it is incontestable that the prices of corn rule considerably higher in America than in Poland, the north of Germany, and the Black Sea. This being the fact, as fact it is, how will the "Liverpool Merchant" make out his case that, "under a moderate fixed duty," there could be any great general extension of corn imports from the United States, or what he calls "a steady trade" in that commodity with them? In periods of scarcity and high prices there would be, as there are and have been, considerable imports from America; as there have been also from France and from Belgium; but it would be absurd to reason

The Black Torrington estate, consisting of 2,500 acres of land, has been purchased by Lord Ashburton for 30,000l.—*Exeter Times*.

from an isolated case, or from the extraordinary occurrences of one or two years, and so confound and transform the exception into the rule. On the approaching advent of a bad harvest here, always foreseen and speculated upon, recourse is had forthwith to the cheapest corn countries, and especially to those nearest at hand, first. The Baltic ports are therefore first visited, and partially cleared of their stocks. But as prices are enhanced there in the natural order of things with large purchases, and holders are more tenacious as they become advised of rising market, and short produce in England, the speculator next bends his steps to more distant regions, and ransacks the stores of Odessa, if stores there chance to be. He will next resort, to complete his operations, to some of the ports of Asia Minor, with Leghorn and other Italian ports. It is only in default of obtaining the proportion of supplies of which he is in want, or for which he has the means of payment, that he turns his attention to the United States. The reason is evident. His object is not only to sell at the dearest rate, but to buy at the cheapest, because, from the balance results the largest share of profit; and common prudence dictates resort, therefore, in the first instance, to the cheapest and most abundant corn countries. It is only when by his extensive operations the warehouses there have been drained, and prices have advanced so high as to be equalized with those of this country, the market to which he brings his commodity, that he looks elsewhere, and among the rest to the United States. Although corn there is generally dearer of cost, as compared with the parts of the world cited, yet as prices rule so high in England he finds that he can import with a profit still, though a less profit; whilst the American producer, with fair stocks on hand, finds a sale profit also, then that the stocks of the cheap corn countries are exhausted. But it is only under these conditions, and with prices elevated to a certain point here, that American corn can be imported with a profit at all, either to grower or importer. When, for example, the house of Barings commenced their great corn purchases abroad in the year 1838, which were continued last year, although not on so large a scale, they did not despatch their ships in ballast to New York, or Philadelphia, or New Orleans, but to Dantzic, Königsberg, and Memel. They left the lesser people to glean afterwards what is called just a "living" profit, by picking up a few thousand barrels of flour and quarters of wheat in the United States. It is true that the lowness of freight, the certainty of return cargoes, and the general facilities of intercourse, are all so many advantages in favour of the American product, and to the extent serve to reduce the difference of price and the greater cost of production, as between America and the cheap corn regions, but after all they are not considerable enough to equalize them upon balance, as from what has been said may readily be understood. It may safely be assumed, without recurring for the occasion to any calculations in everybody's power, that so far as labour, which enters so materially into the cost, corn can be raised in nearly all the European and Asiatic corn countries before quoted at one-fourth of the outlay required in the United States. The "Liverpool Merchant" may find on consultation of the proper authorities that on an average of years wheat at Salonica, for example, is not one-half the price it shall bear in New York. Doubtless, with the high rates of price now prevailing, and with the bareness of supplies in the north of Europe and elsewhere, corn and flour may be temporarily imported with profit from the United States. It is a misfortune,

we are free to own, that in seasons of deficiency here, the supply cannot be furnished in a larger degree, and more exclusively from the United States, because, as the "merchant" fairly observes, the return value is taken, not in specie, but in manufactures. The reverse is the fact with respect to Poland, where the people are too poor to be profitable consumers, even if the duties on manufactures were not prohibitory. It is not necessary to show the "merchant" how really futile are his sanguine speculations of advantage to the English farmer from a moderate fixed duty on corn, on the plea that they would reap a corresponding profit of a "considerable advance in the price of wool," from the increased demand of America for woollens. But it may be retorted upon him that he seems to be in "entire ignorance" of the fact that the Americans grow wool and make woollen cloths themselves, and that both the growth and the make are on the increase. The breed of sheep in America, writing from memory, is already equal to nearly three-fifths that of this country. The breed here is estimated somewhere about 35,000,000, and in the United States we think at 20,000,000, if not more.

IMPORTANT TO FARMERS.

I beg leave to inform all farmers, whose lands are infected with wire-worm, that I have discovered what I consider to be an effectual method of irradiating those destructive insects.

Having purchased a subsoil plough, for the purpose of breaking up the crust of my sand-land, I commenced using it three years ago, with great success as regards turnips and barley crops. Last winter I subsoil-ploughed three fields, and left a fourth undone, all of which are subject to the worm. My growing crops now show that this ploughing has been a very efficacious means of destroying the worm. The three fields that were subsoil-ploughed are quite free from the worm, and have produced beautiful crops of turnips; while the fourth, I am convinced, would have been nearly all destroyed, had I not employed women and children to go up and down every row, with a knife in one hand, and a pair of scissors in the other, to cut the worms at every injured plant; and by that means I saved eight acres out of ten.

Now I come to the important part of my experience. I commenced with the subsoil plough in January last, and finished in February. My man who used the plough informs me that he found the worms in clusters in the subsoil, in a dormant state; he stopped the plough, and destroyed them in quantities, and I am of opinion that the rooks destroyed the remainder, for there is not a square yard deficient in the three crops of turnips where the plough was used.

I believe the subsoil plough was invented by a Mr. Smith, a Scotchman. I got mine from him. It is made entirely of iron, and calculated to raise the soil from twelve to fourteen inches. I only worked it about four inches, which I consider a sufficient depth. The construction of the plough is very simple, and may be made by any good mechanic.

If any gentleman has a desire to try the experiment, and wishes to obtain a plough, by applying to me, or to Mr. J. West, land-agent of this place, by letter (post-paid), he shall have due attention paid to his order.

JOHN WRIGHT.

Collingham, Notts, Sept. 17, 1840.

ON THE CONSTRUCTION OF TANKS.

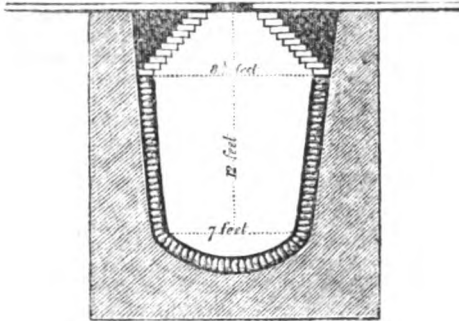
[FROM COMMUNICATIONS MADE TO THE SOCIETY BY MRS. DAVIES GILBERT, OF EASTBOURNE, SUSSEX.]

(From the *Journal of the Royal Agricultural Society*.)

These tanks are remarkable for their simplicity, economy, and efficiency, and between thirty and forty of them have already been constructed in Eastbourne and its neighbourhood, and also many in Cornwall, as reservoirs for rain water, in

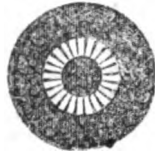
districts where the drainage of the mines occasions a great deficiency in the springs.

The depth of the tanks is often 12 feet, and the excavation is circular like that of a common draw-well: the diameter, however, of the upper part being one-third greater when the hole is first dug than that of the bottom: the sides are not upright, but have a shelving inclination, which enables labourers, unused to mason-work, to construct them; but where the ground is hard (as in the case of chalk) some labour in making the pits might be saved by their being larger at the bottom than at the top, as is the case with some wells.



After the excavation has been completed, the bottom of the tank is formed of either brick or stone work, or of chalk flints, bedded in with grey lime mortar, and coated with Parker's cement, no *clay* being used in any part of the tank; and the sides are then walled up in the same manner to within about one-third from the top, when the doming commences by circular layers of

bricks, flints, or chalk, resting immediately on the top of the side-walling, the successive courses advancing one-third of their length beyond the previous layers, which are regularly backed in and kept from tilting during the progress of the work by earth. When the doming reaches the surface, and the last course has been laid down, the work will present the following arrangement.



The top must then be secured by slabs of wood, four stones, or bars of iron, or mason-work a foot or two high; a circular opening being left of sufficient size for a bucket, pump, or a man to go down occasionally for the purpose of cleaning the tank. A pump is the most advantageous means of drawing out the manure; but as the pump is liable to be choked by sediment, it should be moveable, and raised, as the soil is deposited at the bottom, by being passed through rings fixed to a post or the nearest building; and if there are several tanks on a farm a single pump may be used for all by turns. These pumps are made of iron, copper, or zinc, by Mr. Turner, of Dorset-street, Fleet-street; and it is essential that a hole be made in the extremity of the handle to fix on a stick of wood, to enable persons standing on the ground to use the handle for the delivery of the liquid into a cask on wheels.

The expence of these tanks depends of course upon the hardness of the ground in digging, and on the kind of material used in casing the bottom and sides of the tank; namely, whether brick, stone, or flints, bedded in the best lime,

mortar, or cement: but, whatever the shape may be, the cost of workmanship paid at Eastbourne has generally been 10s. per 100 feet of surface, for casing the bottom and sides; when brick-work is used, $1\frac{1}{2}$ inch work is sufficient: if flints, from 9 inches to 12 inch work. In digging the last tank of 12 feet deep, on Mrs. Gilbert's estate, two labourers were employed seven days, and eight more days to make a drain for conveying the water from the high-road and casing and doming the tank. The doming was accomplished with the chalk-stones dug out in excavating the tank. One of the tanks at Eastbourne, about 7 feet deep and wide, has served two labourers' families with water for ten years; and the mason-work of this tank was made by three boys of only twelve years of age. One of 12 feet by 7 feet has been found sufficient to afford a constant supply of water to a large family and six horses; this was surrounded by only $4\frac{1}{2}$ inch brick-work, well grouted in with good grey lime mortar, resting solid against the sides. At the Eastbourne Union House, for fourteen parishes, a tank has been made 23 feet deep by 11 feet wide, of the roughest

materials, being only flint-stones; and though they require more mortar than regularly-shaped stones, only 90 bushels of lime were allowed, including two coats of plaster; and the workmanship was executed by the paupers themselves—the only essential points being, that no clay (which worms in time bore through) be used, and that the lime or Parker's cement be good. Labourers' gardens have been watered by the rain which formerly injured the public road, and now turned into a tank surrounded with 9-inch masonry, and the water drawn up by a cast-iron curb. Ponds have been made with equal success on the same principles, dug only $4\frac{1}{2}$ feet below the surface, the excavated portions being added to the sides and covered with pebbles about one foot thick, like a road, embedded in good lime mortar.

Tanks both for soft water and liquid manure are desirable in most farm-yards.*

ON FEEDING SHEEP IN YARDS.

SIR,—Having read in your report of the North-lerton Agricultural Meeting, Mr. John Welbank Childer's remarks on sheep feeding, and having myself practised house-feeding sheep for many years, I beg to say that I perfectly agree with Mr. J. W. Childers as to the extraordinary increase of size and condition as well as economy of food, and what he omits, acquisition of manure, but I think it right to state, for the benefit of those who may be inclined to try the practice, that I have found from long experience that when closely confined in an airy house or shed they did much better, and were less liable to foot-rot, than when allowed to go into a yard, which I attribute to their receiving a sudden chill on going from the warm house into the open air; particularly in bad weather, when on their return to the house, the evaporation from their wet wool causes such intense cold as to check their insensible perspiration, which materially injures their health, causing consumption, cough, and many other diseases. In my opinion, they thrive best in a covered house, on hurdles raised some inches from the ground, lightly littered over, so as to afford dry footing; the litter should be often changed, and the hurdles raised and cleaned under, to prevent any bad smell, and if some sand or fine mould be laid under the hurdles, it will increase the dunghill with the best description of manure. When corn is not very high, one pound of bruised oats or barley to each sheep, or of peas or beans, steeped in strong salt and water, in addition to their potatoes or turnips, greatly accelerates their fattening, and amply repays the expense. They should always have the use of salt, and plenty of clean water to drink.

I remain, Sir, yours,
AN IRISH FARMER.

Should any of your subscribers wish for any further particulars, I shall be happy to afford them the results of above twenty years' experience.

August 17th.

* The Rev. Mr. Rham, in his "Outlines of Flemish Husbandry," page 80, and art. "Dairy," in the Penny Cyclopædia, has recorded the estimation in which liquid manure tanks, or vaulted cisterns under the cow-houses, are held in Belgium.

TOLLS ON LIME USED AS A MANURE.

A pamphlet written by Mr. S. Bailey, Hereford, and published by E. G. Wright, of that town, has lately come under our notice, in which the writer considers the injustice and hurtful tendency of taxing, or in any way adding to the expense of any articles that are used for the purpose of improving the land, and increasing the necessities of life; and makes several very judicious observations on the benefits that would attend, and have attended the abolition of such direct imposts on industry, and concludes with miscellaneous remarks on the situation of cottages, and on the management of turnpike roads. The latter subject has in many places attracted much attention, and we believe, like all similar concerns, good and bad management will be found pretty nearly balanced. The author's idea of publishing the cash accounts of the respective trusts would be attended with satisfaction in certain quarters, and where open straightforward conduct prevails, no objection can be urged; and where that is wanting, publication might induce it. In the scale of a taxation on the eatables and wearables of life, where the necessity exists of raising a revenue from such sources, justice and equity would place home productions in the last rank of being taxed, and in the first of being relieved; and among home productions, a distinction would be made between those that appear of first or secondary importance, or between those that are essential to industry in any shape, and others that are applied to the purposes of luxury and ostentation. All direct imposts create more alarm and dissatisfaction than those which operate indirectly, or which affect by various ways before reaching the original article; and taxes on a manufactured article are much more obnoxious than when imposed on raw materials, either of importation or of home production. Direct imposts on such articles as tiles, bricks, lime, and manures of any kind, are certainly in the first class of relief: in many places tolls are not charged on the latter articles, and in others they yet prevail. The evasions mentioned by the author as being practised by carriers and others in order to evade the heavy payment of tolls, merely shew the shifts employed by human nature in order to avoid oppressions on industry, real or supposed: if the burden could be made light, evasion would not be worth the trouble. On the subject of the corn laws, the author appears a most violent party-man, and sees the results through one focus only; on that point, we have only to say that experience often falsifies many similar predictions on such complicated subjects. The turnpike trusts and private roads of our country are not yet placed on a sound footing of management; local governments will become apathetic when the means of execution must be imposed by the members on themselves. A general comprehensive measure, on a new foundation, is wanted. The author has had ample means of making observations on these points, and brings forward facts for illustration; and in publishing the results of his attention to the subject, he deserves much credit from the agricultural world, and by forwarding petitions and letters to Members of Parliament, means have been adopted of engaging public attention, which we hope will ere long remove such hurtful imposts, and relieve and encourage industry by every possible means.

DISTEMPER IN CATTLE.

Benefit of Tar Water in Fevers, for Cattle as well as the Human Species, in a Letter from the Lord Bishop of Cloyne, to the Rev. Dr. Halls. Published at His Lordship's Desire, on occasion of the present Distemper among the Cattle, and for the general Good of Mankind.—London Magazine, March, 1747.

"To one gallon of fresh tar, pour six gallons of cold water; stir and work them strongly together with a large flat stick for the space of one full hour; let the whole stand six or eight hours that the tar may subside, then scum it, and pour off the water, whereof three gallons warm are to be given the first day, two the second, and one the third day, at equal intervals, the dose not being less than a pint, nor more than a quart, and the beast being all that time and for two or three days after, kept warm and nourished, if it will not eat hay, with a mash or gruel.

"I believe this course will rarely fail of success, having often observed fevers in human kind to be cured in a similar method. But, as in fevers, it often throws out pustules or ulcers on the surface of the body, so in beasts it may be presumed to do the like, which ulcers being anointed with a little tar, will, I doubt not, in a short time, dry up and disappear.

"By these means the lives of infected cattle may be preserved at the expence of a gallon of tar for each. A thing which I repeat and inculcate, not only for the sake of cattle and their owners, but also for the benefit of mankind in general with regard to a fever, which terrible subduer and destroyer of our species I have constantly found to be itself easily subdued by tar water. Nevertheless, though in most other cases I find that the use of this medicine hath generally obtained, yet in this most dangerous and frequent case, where its aid is most wanted, and at the same time most sure, I do not find that the use thereof has equally obtained abroad in the world.

"It grieves me to think that so many thousands of our species should daily perish by a distemper which may be easily cured by a remedy so ready at hand, so easily to take, and so cheap to purchase as tar water, which I never knew to fail, when copiously drank, in any sort of fever. All this I say, after more than an hundred trials, in my own family and neighbourhood.

"But whatever backwardness people may have to try experiments on themselves and their friends, yet it is hoped they may venture to try them on their cattle, and that the success of such trial in fevers of brutes (for a fever it plainly is) may dispose them to probable hopes of the same success in their own species.

"Experiments, I grant, ought to be made with caution, and yet they may be made, and actually are made every day on probable reasons and analogy. Thus, for instance, because I knew that tar water was cordial and diaphoretic, and yet no inflamer, I venture to give it in every stage of the small-pox, though I had never heard before of its being given otherwise than as a preservative against that distemper, and the success answered my expectation.

"If I can but introduce the general use of tar water for this murrain, which is in truth a fever, I flatter myself this may pave the way for its general use in all fevers whatsoever.

"A murrain among cattle hath been sometimes observed to be the forerunner of the plague among men. If that should prove the present case (which God forbid) I would earnestly recommend the copious drinking of warm tar water from the very

first appearance of the symptoms of such plague. I do also recommend it to be tried in like manner against the bite of a mad dog, when other approved medicines are not at hand."

THE CORN LAWS.

(TO THE EDITOR OF THE HERALD.)

MR. EDITOR,—The corn laws are, of course, just now, an interesting subject, and, upon the broad general principle, you have handled your correspondent, "A Constant Reader," well. Will you allow me to grapple with him for a few minutes in detail. The whole of the horror of your "Constant Reader" against the corn laws is compressed in the following passage of his letter:—"As to making it up (the sufficiency of corn bread for this country) by means of our British soils at home, *the thing may be regarded as impossible*. To bring a larger breadth of our home soils into cultivation we must bring a portion of our poor and sterile mountains, bogs, moors, and heaths, into cultivation. This their owners can have little or no inducement to do." It is twenty years this day, since I first visited Lincolnshire. The last stage was from Sleaford to Lincoln. For miles, as far as the eye could reach on the right and left, it was one blank rabbit warren. It is to this day called *Lincoln Heath*, and will probably be called by that name for a century to come. But is it a *heath*? Within five years of the date of my first excursion it was overladen with standing corn. The Earl of Bristol, the Earl of Ripon, Mr. Chaplin, and others leased this rabbit-warren, on easy terms as regards rents, to agricultural capitalists; and the land which seemed incapable of growing any thing but dog-grass, now grows five quarters of wheat, or nine quarters of barley, or twelve quarters of oats per acre! So much for the despair about a "heath." Now, if your "Constant Reader" will just take a walk three miles from Dunstan Pillar, and stand on the brow of a high table land from Potter-Anworh, he will then see what can be done with a *bog*. I will not now trouble you with what I have heard my worthy father-in-law say about the Fens of Lincolnshire, in which he was born and bred, and will die. I will tell you what within my experience I have seen done myself. I have seen corn cut in the Fens of Lincolnshire in boats! There is nothing of that *now*. There is on the spot (and it is impossible to estimate too highly, the *Cincinnatus* sort of feeling which Lord Ripon evinces after retiring from active life) a steam-engine erected, which, by a few days' play in the year, keeps that immense *bog*, stretching on the right of the Witham from Lincoln to Boston, just at the proper moisture the land wants! I will defy any man to show me such crops as are now standing in that *bog*. But I must hasten on, and request your "Constant Reader" to cross the river with me, and hurry to the *Wolds* of Lincolnshire. There he will see what *mountains* will produce, when properly cultivated. Why, Sir, upon that very land, which was not thought worth 5s. an acre, when, like Lincoln-heath, it was perishing for want of cultivation, men live and ride now, as they ought to do, in their carriages. I have that confidence in the industry and the skill of an English farmer that no difficulties of heath, bog, or mountain will, with due protection, prevent him from making this island what it ought to be, "a one and perfect garden overflowing and overgrowing."—Yours,

Aug. 26.

B.

ON GREASE FOR DIMINISHING FRICTION OF MACHINERY.

When every mechanical contrivance has been adopted for the purpose of diminishing the obstruction caused by the attrition of the communicating parts of machinery, it is well known that by the application of unguents the friction may be further removed. Oils are found most suitable for metals, and swines' grease or tallow of any kind when the surfaces are made of wood, and the powder of black lead, has been found very useful in relieving the motion in very small works of wood. Tallow is generally most useful, especially in the case of wood moving upon metal greased with that substance.

In the year 1836, a patent was secured by Mr. Partridge, for the discovery of the following composition for diminishing the friction of the wheels of carriages:—

"To about 20 gallons of clear soft water apply 3 or 4 lbs. of fresh lime, put them into a cask, and stir them well about, then let it stand about 24 hours, or until the water is quite clear, when it may be drawn off as wanted. The lime water should be stirred up every five or six days, that the water may be kept fully impregnated with the lime. To one part or proportion of this solution of lime-water, add one part or proportion of olive oil. These ingredients are to be placed in an open vessel, and whisked, beat, or stirred well together until they are completely blended; or they may be placed in a bottle or jar, and well shaken, until the same effect takes place. The composition of lime-water and oil will then have the consistency and appearance of thick cream, and if the composition made from the above proportions should be found too thick, it may be thinned or reduced in consistency by adding a little more oil; and I would remark that the composition should be well shaken or mixed up before using, and the lime-water should be kept free from sir and as cool as possible.

"For axle-trees and other bearings this composition will be found superior to pure oil, and will not be consumed so rapidly.

"To render this composition more applicable to the lubrication of cogs or teeth of wheels, I prefer whale or other common oil, which may be used in one part or proportion to two parts or proportions of lime-water; and when perfectly commixed as before stated, it is to be added palm oil or tallow, or both, and well rubbed or ground therewith until the composition assumes the appearance of thick paste, when a small quantity of carbonaceous matter, such as plumbago, soot, or black lead may be added, and when incorporated with each other, the composition will be fit for use."

Cows' dung has been found very effectual in the case of carriage wheels set on fire by friction. A very important unguent for the purpose of diminishing the friction of machinery was accidentally discovered in North America in the substance "soap-stone or steatite," pulverized and mixed with oil, tallow, or tar, according to the use to which it is to be applied. It has been used most successfully in all kinds of machinery, and is said to be equally applicable to carriage wheels, and heated machinery has been cooled by it when all other unguents had failed. A motion of 100 revolutions a minute in a wheel turning very heavy rolling machinery, was kept cool and easy without any inconvenience for five weeks without being renewed by the composition.

Soap-stone or steatite, from gr. *στεπ-αρος*. tallow or fat of any kind, is a sub-species of rhomboidal mica—colour grey, greenish white, yellow and reddish white, sometimes marked with spotted and dendritic greyish black delineations, and often veined—occurs massive, disseminated in crusts and uniform, and also in six-sided prisms, in an acutely double six-sided pyramid, and in a rhomboid; the two former are from rock crystal, the latter from calcareous spar. Steatite is internally dull, or feebly glimmering, from a mixture of foreign parts—fracture coarse, splintery, and pass into coarse and fine-grained unoven fragments, angular and blunted—translucent on the edges—streak shining—writes feebly—very sectile—difficultly frangible—feels very greasy—does not adhere to the tongue—sp. gr. 2.4 to 2.6. It loses colour before the blow-pipe and becomes white and hard—fuses with addition, and melts with borax and soda into a greenish slag. Contains:—

Silica.....	44.00
Magnesia.....	44.00
Alumina.....	2.00
Iron.....	7.30
Manganese.....	1.30
Trace of lime and muriatic acid..	

100.80

In some specimens, the portion of magnesia is low as 20, the alumina often wanting, and in some cases as high as 14.

This mineral occurs in small veins that traverse serpentine in all directions, and in feldspar rocks, and also in the metalliferous veins of primitive rocks—it abounds in the serpentine beds in Scotland, in Cornwall, and in Anglesey.

Steatite is much used in the manufacture of porcelains, and like Fullers-earth and indurated tale, it readily absorbs oily and greasy matter, and is hence used for extracting spots of grease from silks and woollen stuffs, and in polishing gypsum, serpentine and marble; when pounded slightly and burnt, it forms the basis of certain cosmetics; writes on glass, and differs from chalk, which leaves no mark, and it is used by glaziers in making plates of glass before they are cut by the diamond. The savages seen on the Orinoco in South America eat steatite, though it absolutely contains no nourishment.

Graphite, another genus of mica, from Gr. *γραφω*, to write, so called from its capability of writing and leaving a mark, is also used in a powdered state for diminishing the friction of machines by being grubbred on the surfaces in a thin stratum, and thus interposed betwixt the parts of attrition.

July 12, 1840.

J. D.

ON LINSEED FOR FEEDING CATTLE.

SIR,—Being convinced that linseed may be used for the feeding of cattle and sheep more profitably than oilcake, could we but know the best mode of preparing it so as not to pass too quickly but be properly digested, I shall be much obliged to any of your readers who can inform me how it can best be prepared for the use of cattle or sheep. Whether by steaming, boiling, or crushing? and if by the latter mode, what mixture must be added to absorb the oil which might be otherwise squeezed out and lost?

I am, yours,

LINSEED.

STATE OF CRIME, 1839.

The following are the leading outlines of returns lately presented to both houses of Parliament, by command of her Majesty, entitled "Criminal Tables for England and Wales, 1839:"—

"The criminal tables for 1839, show a considerable increase in the number of persons committed for trial in that year; the decrease of 2.2 per cent. in 1838, having been followed by an increase amounting to 5.8 per cent., a result which for many years has succeeded any temporary check in the continuous increase of the number of commitments. The increase is spread over 25 English and 9 Welsh counties, and amounts to 2,627 persons, or 12.5 per cent.; while the decrease extends only to 14 English and 3 Welsh counties, and amounts to 671 persons or 11.1 per cent., leaving the net increase 1,356 persons.

"The following calculation will show the proportionate increase or decrease in each of the classes of crime during the last three years:—

Class.	1837.	1838.	1839.
1st Offences against the person	12.1 dec.	8.1 inc.	8.1 inc.
2nd Offences against property, committed with violence	6.8 inc.	9.1 inc.	6.9 dec.
3rd Offences against property, committed without violence ..	18.8 inc.	3.3 dec.	5.3 dec.
4th Malicious offences against property ..	32.1 dec.	21.9 dec.	17.9 dec.
5th Forgery, and offences against the currency	27.0 inc.	10.3 inc.	13.3 dec.
6th Other offences, not included in the above classes	1.0 inc.	20.4 dec.	47.3 inc.

"The principal increase in the last year, in the 1st class, has fallen chiefly on the lighter offences of assaults and assaults on peace officers. There is an increase in the attempts to murder; but murder itself, and manslaughter have decreased. In the 2d class, burglary, house, shop, and counting-house breaking have decreased; robbery has slightly increased. In the 3d class, which includes nearly four-fifths of the whole number of commitments, all those offences of most frequent commission have increased—such as larceny, larceny in dwelling-houses, from the person, and by servants (which latter offence has increased 20 per cent. last year, and has been progressively increasing for several years) embezzlement, fraud, and receiving stolen goods; horse, sheep, and cattle stealing have decreased. In the 4th class the increase has been general, though, compared with the preceding five years, the numbers are far below the average. The 5th class shows a decrease, which has been very marked, in coining, and having in possession coining implements; while, at the same time, the increase for uttering forged Bank of England notes, has been equally remarkable, though the commitments for these offences are so few that the proportion is doubled by the addition of two or three offenders. The 6th class has considerably increased, and this may, in a great measure, be attributed to the political offences connected with Chartism, which are placed in this class under the head riot, sedition, &c. But the Chartist offences, for trial at the Monmouth Special Commission, and many other prosecutions of this description, do not find a place in these tables. They will be inserted in the tables for 1840, in which year they remained for trial.

"The great amelioration of the criminal code, which was effected by the acts of the 1st Victoria, is more clearly exhibited by the tables of 1839 than by the tables of the preceding year, those acts having come more generally into operation. The capital convictions amount to 54 only, a number considerably less than the average of executions 10 years previously.

"The acts of the 1st Vic. have also had a very beneficial effect upon the result of prosecutions; juries being in all cases less unwilling to convict when they know that capital punishment will not follow.

"Though there has been, for many years, a great progressive increase in the number of commitments and convictions, the increase in the number sentenced to transportation has been beyond all proportion to the general increase. This great increase in the number of transports immediately followed the Act of the 7 and 8 Geo. IV., c. 28, and arose out of an enactment in that statute, augmenting the punishment to which the prisoners were liable, on the proof of a previous conviction for felony. The greater severity in the punishments, which was consequent upon this enactment, is at once obvious on a reference to the numbers sentenced. The act was passed in 1827; the average numbers sentenced to transportation in the three preceding and the three following years, were as follows:—

	Aver. of 1824-5-6.	Aver. of 1828-9-30
Numbers sentenced to transportation for life.....	125	373
Ditto ditto for 14 years ..	140	619
Ditto ditto for all periods .	1884	3168

"This sudden increase was maintained in the succeeding years, and gradually progressed with the general increase of commitments, so that the average of the last six years amounts to 3746. The acts of the 1st Victoria have, however, tended to reduce the frequency and severity of this sentence. The numbers sentenced to transportation, or whose sentences were commuted to that punishment, which in the four years preceding those acts averaged 4154 annually, were, in the last year, 3699 only, and the severity of the periods of transportation were at the same time reduced in a much greater degree.

"The calculations which have for several years been made as to the ages and degrees of instruction of criminals, exhibit a very great uniformity of result. During the last four years nearly 41 per cent. of the criminals do not exceed 21 years of age; and in the next division of the tables, those not exceeding 30 years are included 71 per cent. This would give criminals but a short career, and may in a great measure be attributed to the numbers annually removed from the country by transportation.

Degree of instruction.	1839.	1838.	1837.	1836.
Unable to read and write	33.53	34.40	35.85	33.52
Able to read and write imperfectly	53.48	53.41	52.08	52.33
Able to read and write well	10.07	9.77	9.46	10.56
Instruction superior to reading and writing well	0.32	0.34	0.43	0.91
Instruction could not be ascertained.....	2.60	2.08	2.18	2.68

"With respect to the sexes of criminals, it is worthy of remark, that for several years the proportion of females has been increasing. Comparing the number of males and females, the centesimal proportion of the latter was, in 1834, 18.8; in 1835, 20.0; in 1836 and 1837 it was the same, 21.6 (though the fraction, if carried further, still shows a small increase in 1837); in 1838, 22.1; and in 1839, 23.2,

"Home Office, Whitehall, June 11, 1840.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I should feel greatly obliged to some experienced Sheep Breeder who would give information through the medium of the *Mark Lane Express*, as to what is the best cure for sheep that lose their eud.

Yours respectfully,

A NORTH DERBYSHIRE FARMER.

ENGLAND IN THE SEVENTEENTH CENTURY.

(FROM BLACKWOOD'S MAGAZINE.)

The following curious particulars as to the state of England in the 17th century are collected from a little book called "*Anglia Rotata*," by Edward Chamberlayne, LL.D., R.S.S., dedicated to the Lord Treasurer Danby:—

"The English are generally great flesh eaters, although, by the nearness of the sea, and abundance of rivers and fish ponds, there is no want of fish. In former times, their table was, in many places, covered four times a day; they had breakfasts, dinners, beverages, and suppers, and every where set dinners and suppers, until the time of the late troubles; wherein many eminent families being much impoverished, a custom was taken up by some of the nobility and gentry, of eating a more plentiful dinner, but no supper; as, on the contrary, the Romans and Jews anciently, and the hotter climates at this day have little or no dinners, but set suppers.

"Feasting, also, is not so common and profuse as anciently. Anciently, at a call of sergeants-at-law, each sergeant (saith Fortescue) spent 1,600 crowns in feasting, which in those days was more than 16,000 now.

"Since the late rebellion, England hath abounded in variety of drinks (as it did lately in variety of religions) above any nation in Europe. Besides all sorts of the best wines from Spain, France, Italy, Germany, and Grecia, there are sold in London above 30 sorts of other drinks, as brandy, coffee, chocolate, tee, aromatic, mum, sider, perry, beer, ale, many sorts of ales, very different as cock, stepony, &c.; a piece of wantonness whereof none of our ancestors were ever guilty.

"The ancient English vices were gluttony, pride in apparel, and excess of drinking. Some persons, and those of quality, may not be safely visited in an afternoon, without running the hazard of excessive drinking of healths; and in some places it is esteemed an excellent piece of wit to make a man drunk; for which purpose some swilling insipid trencher buffoon is always at hand.

"However, it may be truly affirmed, that at present there is generally less excess of drinking (especially about London since the use of coffee, &c.) than heretofore. Duelling, so common heretofore, is now almost laid aside here as well as in France.

"Houses in cities, that were made formerly usually of wood, are now built of good stone or brick, and covered with slate or tile; the rooms within, formerly wainscoted, were then hung with tapestry, or other convenient stuff; and all ceiled with plaster, excellent against the rage of fire, against the cold, and to hinder the passage of all dust and noise. The modern buildings were far more slight, and of less continuance than the ancient. The houses of the nobles and rich were abundantly furnished with pewter, brass, fine linen, and plate; the mean mechanics and ordinary husbandman wanted not silver spoons, or some silver cups in their houses. The windows every where glazed, not made of paper or wood, as is usual in Italy and Spain. Chimneys in most places, and no stoves, although the far more southern parts of Germany could hardly subsist in the winter without them.

"Anciently the fee expected by a sergeant from his client, for advice given at his chamber, or for pleading in any court of judicature, was no more than 20s., and the fee of a barrister 10s.; but at present it is become almost ordinary to give some sergeants 10l., and some 20l., and to a barrister half as much at the hearing of any considerable cause; whereby it comes to pass that some lawyers in one year gain in fees 3,000l., and some 4,000l.; and, in a few years, purchase estates fit for lords, and sometimes live to see themselves advanced to be peers of the realm.

"Anciently the usual fee of a doctor of physic was 20s., and one that had not taken that degree 10s.; at present there is, no certain rule, but some that are

eminent have received in fees yearly 2,000l. or 3,000l., and purchased great estates, which in other countries is very rare.

"The income of the Queen Dowager was 60,000l. a year; the lords of the bedchamber had 1,000l. a year; and the officers of the household seem to have been paid very much according to the present scale."

The following account of the Post-office is curious, at a time when we have seen its revenues amount to a million and a half of pounds sterling—of which, it seems, the Exchequer could spare one million!

"Though the number of letters-missive in England were not at all considerable in our ancestors' days, yet it is now so prodigiously great (since the meanest people have generally learnt to write), that this office is farmed for 30,000l. a year. A letter, containing a whole sheet of paper, is conveyed 80 miles for 2d.; two sheets, 4d.; and an ounce of letters but 8d.: and that in so short a time by night as well as by day, that every 24 hours the post goes 120 miles; and in five days an answer of a letter may be had from a place 300 miles distant from the writer."

Travelling, too, had improved:—

"There is of late such an admirable commodiousness both for men and women of better rank, to travel from London to almost any great town of England, that the like hath not been known in the world, and that is by stage coaches, wherein one may be transported to any place, sheltered from foul weather and from foul ways, free from endamaging one's health or body by hard joggling or over-violent motion, and this not only at a low price, as about a shilling for every five miles, but with such velocity and speed, as that the posts in some foreign countries make not more miles in a day; for the stage coaches, called flying coaches, make 40 or 50 miles in a day (!) as from London to Oxford or Cambridge, and that in the space of 12 hours, not counting the time for dining; setting forth not too early, nor coming in too late."

TO THE EDITOR.

Sir,—In the Farmer's Magazine for August, page 101, is a plan of treatment for the disease termed "diarrhœa," which form, by being wrongly worded, may lead those who follow the advice into a dangerous error.

The receipt says, "As soon as the disease is ascertained, use gentle bleedings and mild purgatives, such as prepared chalk, opium, catechu, &c." The words "*such as*," together with the omission of the name of the mild aperient, convey the mistake; chalk, opium, and catechu, so far from being purgatives, are powerful astringents, and would, if used as recommended, do much mischief, by prematurely checking the purging. With all due deference to the compiler of the paragraph, he must allow me to alter it thus:—as soon as the disease is ascertained, use gentle bleeding and mild purgatives, such as powder of rhubarb or castor oil, after the proper action of which, give the form of prepared chalk, &c., in the proportions prescribed. I hope you will pardon the liberty I take in pointing out this error, but now that your magazine is spreading its opinions far and wide, and is become one of the regularly admitted periodicals into the farmer's clubs, it would not be safe to allow so glaring a mistake to pass unnoticed.

I had not time last week or I should have alluded to the receipt of M. O. for the foot-rot; this Mr. Gall has very properly done in your paper of to-day. Persons giving recipes, medical forms especially, cannot be too careful, as what is seen in print is too often believed and tried without farther enquiry; they ought at least to know the legitimate names of the drugs they prescribe, or irreparable injury may result from following up their well-intentioned advice.

The case in point requires more than an ordinary degree of caution; the most powerful preparation of mercury (the strongest poison and caustic in the whole list of medicines,) and the mildest being both white, whilst calomel, the intermediate form, is equally so; the inert metal is of itself of a silvery lustre. Again, in many places "white arsenic" is as often asked for under the name of "white mercury" as under its more lawful cognomen.

"A Young Gardener," date, Ipswich, 19th Aug., must seek further for the cause of the injury to his potato plants, the "black-winged ants." Query, were they not black ants with transparent wings?—were feeding on some small parasitical insect, the real cause of their decay. The ants, probably male and female, for both have wings at this season, were ridding him of the enemy. The ants, indigenous to our soil, are considered harmless, rarely feeding on anything save animal food, or the saccharine excrements of some of the smaller insects.

Your obedient servant,

Stoke-ferris, Norfolk, 25th August.

P.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Your paper may be made extremely useful in aid of the objects of the Royal Agricultural Society, if practical farmers could be in general induced to communicate what strikes them as new, in relation to those objects, and though the communications may not appear of great utility, yet many of them would probably lead to something useful in the minds of some readers. The history of the progress of scientific knowledge, is full of instances of great effects from small gleanings; and men of the greatest ability have not disdained to obtain knowledge, or constantly try to obtain it, even from the humblest individuals.

When I became a practical farmer, Swedish turnips were unknown; heavy crops of other sorts of turnips were grown, and found very precarious food for cattle and sheep by the frosts, which frequently swept them away, and thereby caused great distress.

In those days sowing turnips to be eaten in parts by cattle or sheep in succession, was much disregarded, and instead of a regular supply of nutritious food, the animals had often to be kept on dry coarse woolly turnips (pined in the midst of plenty) on which they fattened slowly, if at all. The tares for summer eating, were not then sown in crops to eat in succession, but altogether; and often from being coarse, much wasted: they were also generally sown on wheat stubbles, foul and poor, the produce of course small. I cannot in the usual space of a letter, notice the immense improvements amongst good farmers, during the last fifty years in draining; course of cropping with prospective previous years preparations, supporting well a large proportion of animals, obtaining and economizing a large stock of manure, with good cleaning of the land from weeds, &c. &c., otherwise than briefly. But the improvement has been gradually progressive, and the experimental farms of bad farmers have been conducive to this effect.

I remain, Sir, yours respectfully,

Nottingham, July 10.

S. R.

ANIMALCULÆ IN CHALK.

Recent examinations of the constitution of chalk and calcareous rocks have discovered that the smallest grains of chalk consist of regular elliptical particles, possessing a crystalline aspect, and that the strata in the north and south of Europe present two different structures, one organic, consisting of microscopical shells, the other inorganic, with a granular slaty disposition and regular elliptical structure. By mixing Canada balsam, by the assistance of heat, with dry chalk, in a fine state of division, Prof. Ehrenberg found in chalk an immense number of microscopical animalculæ: hitherto unknown, varying in size from $\frac{1}{4}$ to $\frac{3}{88}$ of a line. A cubic inch contained upwards of a million of them, and consequently a pound weight of chalk contains above 10,000,000 of the animalculæ. In the white and yellow chalks of the north of Europe, the mineral particles equal or exceed in quantity, the organic matter. But the nautilites greatly predominate in the chalks of southern Europe, and the formation is wholly composed of them, and besides the calcareous nautilites, siliceous infusoria have been found in the chalk of Gravesend. Marls belonging to the chalk formation, and forming ranges of hills, contain siliceous infusoria mixed with the nautilites, which have also been observed in several kinds of polishing slates, some of which are reckoned a tertiary marl formation. The same characteristic animalculæ of the chalk have been observed in the limestone containing nummulites of Cairo, and of the pyramids of Gizeh. Many conservee, sponges, and fuci have been observed, and as many as 71 species of microscopical animals supplied with siliceous and calcareous shells in the chalk, and also several larger shells, about $\frac{1}{4}$ of a line in size. The genera "Textularia and Rotalia" are most predominant. There have been found 7 genera and 22 species of microscopical nautilites and nummulites, shells of the genus Cypris, &c., and 40 species belonging to 14 genera of siliceous infusoria, including the 8 already described, which were contained in the flint, and also 5 species of plants containing silica. Sponges and peculiar nautilites have been found in the flint of the Jura limestone of Cracow, and the shells of the chalk in the kidney-shaped masses found in the strata under the chalk at Cambridge. From these researches it has been inferred, that in all probability the strata of the chalks of Europe are the product of microscopical animalcules, most of them invisible to the naked eye, and that the microscopical nautilites are the characteristic constituents of the chalk formation. Fossil animalcules and the shells in a state of superior preservation, distinguish the chalks of the south of Europe, and the fossils contained in many chalks and nummulitic limestones show that they belong to the secondary formation rather than the tertiary, to which they have usually been assigned. The chalks of the south of Europe contain no flints, while the northern strata possess many horizontal regular beds, separated from each other from one to six feet; but no siliceous infusoria are found, which are so abundant in the southern formations. It is possible that the flints may have been formed by the gradual conversion of the beds of siliceous infusoria, and this change in connexion with the greater quantity of mineral particles, resulting from the decomposition of the nautilites, would appear to assign a more ancient epoch for the formation of the northern chalk.

Aug. 20.

SHEEP BREEDING.

(FOR THE CARLISE PATRIOT.)

"When a race of animals have possessed in a great degree, through several generations, the properties which it is our object to obtain, their progeny are said to be well bred, and their stock may be relied on; and it cannot be doubted that any breed may be improved in the same manner."—*Nir John Sinclair.*

I think that every person who obtrudes his opinion on society, thereby, in some measure, becomes a public servant, and amenable to public opinion. As such I respectfully bow to the suggestions of others, who say it is proper that I should write one more letter on this subject, and then collect the whole into a more permanent form. In the preceding letters, which the public have so kindly received, I have never aimed at display, or striven for mastery, but simply endeavoured to state and elicit the truth, hoping that where I was correct I should be confirmed, and where in error indulgently corrected. It is well known that if, from some unknown or accidental cause, an individual is produced possessing some unusual peculiarities, his progeny, to a certain degree, will probably possess the same, and if a male and female are selected with those peculiarities, and care is afterwards taken to exclude all who have it not, a new and permanent breed may be established. Just so did the late Mr. Bakewell produce and retain the new Leicesters, and just so are produced the justly admired new Oxford. I was at Mr. Hewer's (Gloucestershire) ram sale on the 22d. ult., and saw him really refuse 110*l.* for one sheep; and he, too, must now become an in and in breeder, or he can have no warranty in his sheep, or permanent hold on public approbation. It is also equally clear that climate, soil, and food will effect considerable change in the form and quality both of wool and flesh of every breed. In the few remaining observations I have to make, I hope to win public attention and approval; yet, after all, a writer has his own views, will pursue his own course, and must abide the consequences. And under this responsibility I deliberately adopt the observation that that which enables the sheep-master, not only to modify the character of his flock, but to change it altogether—the magician's wand by means of which he may summon into life whatever form and mould he pleases, viz., the principle of judicious selection, (not necessarily crossing,) for like will beget like, therefore I again urge it, breed only from such as possess the qualities the most desired; and, fortunately, prejudices are fast disappearing before the diffusion of truth, and those who have been accustomed to despise all knowledge but what they gained by their own experience, are beginning to discover this to be a very dilatory mode of acquiring it. I therefore now most anxiously press upon the serious attention of the noble president and members of the British Agricultural Society and stock masters generally, to award prizes and encouragement to such animals only as have right form and constitution, not estimated by comeliness of mould or mountains of fat, and, above all, avoid being led away by capricious fashion, for remember there virtually is but one standard of excellence, and never can be two. Do not be satisfied with hearing your neighbours cry, lo here, and lo there, this is a good sheep, or that is a fine sheep. If he has not anatomical perfection he will lack constitution, and his progeny, even to the third and fourth generation, will be amiss and prone to disease. Are we

not continually hearing that Mr. A. has had bad luck with his lambs, and that Mr. B.'s tegs do not thrive, or that Mr. C.'s ewes are falling off? And we indolently attributing all this to season, pasturage, or faulty shepherding, without ever asking for the truth, which is here, and in a nutshell. What rams have Messrs. A. B. and C. been using for the last three or four years? Would you employ as your builder a man who cannot map a roof or draw a staircase? Will he ever shine as a marine architect who can carelessly regard the skeleton and sailing qualities of the herring? Neither will I encourage the sheep husbandry of him who thinks lightly of the anatomy of the animal. You may contend till doomsday about points, weight, and wool, there is but one form, be it light or heavy, but one internal structure and formation that admit of health, stamina, and constitution; but those obvious and all important facts are sadly underrated by many of our top-breeders. Neither can I sufficiently deprecate the unpatriotic, unhealthy, and uneconomical practice of artificial feeding. Close confinement and artificial food injures the health of all animals, and is hurtful in an especial manner to sheep, which, by nature are of a roving disposition and exceedingly fond of liberty. Let us see what a perverted mode of feeding has done for us in the quality of wool.

Mr. Nottage states, of the Western Down sheep, that he used to get one-eighth part of the finest English wool from each fleece, but now the quantity is so small that he does not take the trouble to throw it out, he does not set a basket for it at all. Mr. Sutcliffe says that thirty years ago there was in some South Down flocks nearly as good wool grown as the fine German that now comes into the country. Mr. Varley states that he used, in sorting his wool, to make ten sorts, but now the quality is getting so low that he has quite lost the two upper castes. Mr. Fison states of the Norfolks, that in 1780, 420*lbs.* of clothing wool would produce 200*lbs.* prime; in 1830 it would produce only 14*lbs.*

These are some of the deleterious effects on the fleece of artificial feeding and coarse breeding; the wool and the flesh is sacrificed to accommodate the tallow-chandler. Therefore, to the top-master who persists in artificially feeding his breeding animals, I would say, lay not the flattering unction to your soul, that you can long pass for an honourable man in entailing on society, stealthily, but surely, a jumbled race of animals that were erroneously propagated, deceptively disposed of, and will be sickly and unprofitable in their progeny. A top so bred and so fed, when reduced to ordinary food, under ordinary circumstances, will become disarranged and inept in himself, and unhealthy and degenerate in his offspring, with foundation for the long train of diseases the species are liable to. While a sheep with a correct skeleton, where the lungs have free space to oxygenize the blood on which vitality depends, and all the viscera unconfined and unobstructed, that *all* the food be assimilated and converted into healthy chyle, then we are sure of a vigorous, healthy, and well developed animal, and which, (especially if bred according to nature,) when making up for the shambles, and placed side by side with one of heterogeneous breed, incorrect form, and pampered constitution, will fatten on less food, and in two-thirds of the time, and arrive at greater weight, or, if allowed in food, will yield finer meat, more profit to the feeder, more credit to the butcher, and satisfaction to the consumer. And be-

fore I close this letter I would observe to all of you who take the trouble to think for yourselves, be not deceived with the vain idea that because you have got a lump of fat that you therefore have secured a good or even a healthy sheep. Be assured that, without pedigree, without form, or without constitution, you will never pass for a scientific or a profitable stockmaster. I am now about to turn my thoughts to some other division of husbandry, and for which I crave a like indulgence. I am, Sir, yours respectfully,

PRACTICAL.

TALLOW AND THE ANGLO-RUSSIAN TRADE.

TO THE MANUFACTURERS OF CANDLES AND SOAP THROUGHOUT THE UNITED KINGDOM.

GENTLEMEN,—I beg to call your attention to a paragraph which appeared in a leading Paris journal, the *Journal des Débats*, a short time back. In allusion to our alliance with Russia, and addressing England, it says:—

“Do not deceive yourselves. Russia has her eyes constantly fixed on Constantinople. There lies the question of life and death for you—for you, we say, because you are a thousand times more interested in it than we are. Are we, in the east, your rivals and neighbours? Who pays and urges Persia to march her armies against you and invade your Indian possessions? Who maintains pretenders to your principalities? Who is secretly driving to revolt their native populations? Who excites China? Who is advancing against you through Central Asia? Russia, Russia! Whatever side you turn to in the eastern world, whence you derive both your power and wealth, you everywhere meet before you that silent, inevitable, and eternal barrier. And yet you are now taking Russia by the hand to lead her to Constantinople. History will not believe it.” And remarks again, “It would appear the misfortune of Great Britain to be constantly fostering the pretensions of Russia, no less through her counsels than by her commerce and her wealth.”

The article has immediate reference to the affairs of the east, but is pregnant of matter which, in the first and highest degree, is important to you. The opinion, as expressed above, is every day gaining ground among the people of this country, and I may venture to assert that there is scarcely one man interested, however remotely, in the Russian trade, who has not seen and felt the baneful influence exercised by the traders of that nation over our own.

It is not enough that we take large quantities of produce from Russia annually—that every article of export to Great Britain forms the subject of *monopoly in her own markets*; but after these commodities are brought to England, *Russian subjects* are waiting to receive them, and ready to practise the same system of *exclusion* among ourselves.

I have selected tallow as the most important article of her produce, and as that which most materially concerns you; and I would ask of any member of the trade whether the extravagant prices at which the Russian monopolists have kept it during the last three or four seasons, have not only prevented the fair trader from getting a profit by his labour, but in many instances occasioned loss and ruin?

Precisely the same is it with hemp, flax, linseed, and other exports to our country.

It is right, therefore, that the people of England should now understand the state of the trade I allude to.

Intelligence, striking and important, is brought by every foreign mail, and in the theatre of the east who can say what tragedy may not be acted? We may be hugged to closer and more intimate alli-

ance with the Muscovites. We may be destined to immediate hostilities against them. But whatever may happen, and under whatever guise we find them, we should, at all events, be well acquainted with the state and value of our commerce, that when the time comes we may neither undervalue, nor regret over much, the traffic we should lose. But if I state broadly, that from the Russians we derive no fair dealing save that negative justice which is forced from them, you may well ask by what means her acts should be met and counterbalanced? Gentlemen, they are in your own power, safe, legitimate, and certain.

In the course of the ensuing month of September, tallow to the amount of 60,000 casks at least will have arrived from St. Petersburg, and in October, or perhaps ere then, 100,000 casks more, the bulk of which enormous quantity will come consigned to one or two men, *natives of Russia*, who scarcely speaking English to make themselves understood, confidently calculate on your credulity, and that this year, as heretofore, you will rush in a body to relieve them at high prices of their adventure.

If you do so, you deserve to lose the profit that it is the object of this letter to preserve for your own use. Remain quiet—“bide your time,” which be assured will come; purchase one cask only at the high price for ten at the fair value, and believe me a variety of little items, rent, warehousing, charges, interest of money, &c., will soon tell a tale, and *prove to you* your power.

And why should it be otherwise? What is there in the present state of England, in the condition of her pastures, and the value and number of her stock, to justify an apprehension of scarcity of tallow? Scarcity, after the addition in this year, of a million to the number of sheep! After an unusually fine season, dry, and luxuriant, are we to fear scarcity when plenty is about us? In London alone there remains over from last season not less than 13,000 casks; this year's import from St. Petersburg, 160,000; from Odessa and other places, 8,000; making a total of 181,000 casks of foreign tallow, each weighing nine cwt., exclusive of an enormous produce of home fat, on which produce so much in every year depends.

Independent of these masses there are warehoused at Buenos Ayres about 6,000 tons, some say 10,000 tons, equal to from 20,000 to 30,000 casks of South American tallow, only waiting the raising of the French blockade to arrive here: and so confident are the merchants trading to that country that the blockade will shortly end, that they have despatched 10 to 12 large ships in ballast to bring it.

Thus much, then, for the trade as depending upon Russian tallow, our own home produce, and the supply from South America. But there is another circumstance of immeasurable importance which bears upon the question,—and whether this new feature is more remarkable in its effect upon the immediate subject I am discussing, or more interesting in its appearance in another view, remains to be seen,—I allude to the produce of Africa, that cradle of slavery, whose occupants have baffled successive ages to civilise, and on whom the people of this happy land have lavished their sympathy and their treasure to raise at least somewhat from this abject state; yet, on the one hand, we encourage the exports of tallow from Russia, we pay homage to the two or three commercial despots who rule over it here, we give them millions of pounds sterling per annum more than the value of their goods, receiving in return a scornful distrust and an hostility to our trade and our settlements, of which one day the full force will be discovered; and on the other hand, there is that country which all classes here would benefit and foster, over whose interests even royalty has condescended to preside, and for whose welfare but one aspiration and prayer prevails. From that country even in its present state of misery, will arrive during the next six months 20,000 tons of palm oil, and why should not that quantity be increased? The demand: let its present value determine that. Its effect upon Russian trade? Are we bound to consider it, when the civilization of Africa is

in the balance? And let the abolitionist of slavery be assured that the encouragement of African trade is the encouragement of African civilisation; and coeval with that will be the downfall of slavery and the slave trade. To you I need say nothing as to the value of palm oil as a substitute. I need not remark upon the effect so large a quantity as 20,000 tons will produce, in addition to the extraordinary quantity of tallow this season. I repeat to you, gentlemen, the game is in your own hands; you, the manufacturers, have but to practice guarded patience, and tallow will speedily fall to that price below which no one interested would wish to depress it. At a future period, I will take the other articles of Russian produce, and show also in our trade with her how little of reciprocity we meet with from the haughty Czar.

A MANUFACTURER.

ON THE CAUSE OF THE INFERIORITY OF STREET MANURE FOR THE RAISING OF POTATOES.

By HENRY R. MADDEN, Esq. M.D., Penicjik.

(Premium of Twenty Sovereigns given by the Highland Society.)

In consequence of a notice having been published by the Highland and Agricultural Society, in reference to some facts communicated to them respecting the inferiority of the street manure of Edinburgh for the raising of potatoes, I have been induced to make some inquiries into the subject, the results of which I beg now to lay before my readers.

The subject is undoubtedly one of uncommon interest, for several reasons, among which stands pre-eminent the one mentioned in the Society's notification above referred to, namely, its tendency to throw some light upon the physiology of vegetable nutrition. Prior, however, to my detailing the experiments which I have performed in connection with this subject, I would beg to make a few introductory observations upon such examinations in general, with a view, not merely to determine the various points to be attended to, but likewise to shew the extreme difficulty of the subject, and consequently the many precautions necessary in order to render them of any practical utility.

As regards the various circumstances which should particularly engage the attention of the scientific investigator, it may be observed generally, that, from the present extremely imperfect state of this branch of vegetable physiology, the more numerous they are, the more trustworthy will be the conclusions which are drawn from their consideration; for although, as the science advances, many of these may be proved to be of no consequence, still, in its present state, the more minutely each circumstance is noticed the better, as it is always preferable to err on the side of too minute enquiry, than to run the risk of drawing false conclusions, from the omission of some circumstances, which might appear trifling at the time, but subsequently prove to be of vital importance to the establishment of the truth.

The connection existing between any particular manure and any particular plant, may be considered, in this country at least, as a perfectly new investigation; not that I mean to assert that no person has endeavoured to find out the best manure

for each particular crop, for, in a practical point of view, there is no subject which has been so carefully examined by judicious farmers. *Scientifically*, however, I do not know of any attempt made to explain the reason why some manures succeed better than others for the raising of certain crops. In this respect, therefore, I may be said to be treading upon a new path, and I trust that my readers will deal leniently with my attempt.

With regard to the difficulties attending such an examination but little need be said, as they must be obvious to all those who have paid any attention whatever to physiological botany. For example, all that is at present known in reference to the nutrition of plants is, that they are capable of extracting various organic matters from the soil by means of their roots, and likewise that they derive nourishment by their leaves absorbing different gases from the air, which are capable of being converted into nutriment. Beyond this, little or nothing is known. Sir Humphrey Davy, indeed, appears to have proved that plants could only absorb *fluids* by their roots, and hence argued that all their food must be soluble in water; but still there are many anomalies here which have never been satisfactorily explained, as, for example, the existence of *insoluble* matters in plants, &c. Again, Berzelius has endeavoured to explain the steps of the process of putrefaction as it occurs in soil, and Thier of Berlin, and Theodore de Saussure of Paris, have followed these out, so as to explain the appearances observed in soils; here also, however, the data are scarcely sufficiently numerous to render the conclusions altogether worthy of being admitted as established laws. By far the greatest difficulty, and, in fact, one which appears to me altogether insuperable, is, that the whole process of absorption by the roots is entirely concealed from our view, and no means can be used to render it visible, which do not at the same time place the plants in very unnatural situations; and, consequently, the results obtained in such cases are certainly extremely liable to lead to erroneous conclusions.

Lastly, in reference to the present investigation, I shall endeavour to point out the probable reasons why street manure is less useful than that obtained from dairies and stables for the raising of potatoes, without attempting to throw any doubt upon the statement that such is really the case; although it would be by no means difficult to shew that the most minute attention to every circumstance of soil, situation, &c., must have been accurately attended to, in order that the statement should be considered as *absolutely* proved. But, since I have no means of ascertaining whether such has been the case or not, I must of course consider the statement to have been so satisfactorily proved to the Society, that no reasonable doubt can be entertained of its *absolute* truth.

1. It is my object in this place to state the different steps of the following investigation, in order that the arguments there laid down may be more fully understood.

The circumstances to which I have paid most particular attention are the following:

1st. I have performed a careful and minute chemical analysis of the three manures in question, with a view not merely of determining their actual constitution, but likewise to institute, as far as possible, a comparison between them.

2dly, I have analysed with equal care the potato, for the purpose of seeing what connection exists between it and these manures.

3dly, I have also examined the composition of the turnip, for two reasons, viz. (1.), to ascertain its connection with the manures in question (this being a crop for which it is stated that the street manure is equal to the other two); and (2.) to see in what respects it differs from the potato.

4thly, (And here the chemical investigation ceases) I have examined the habits of the two plants in question, and compared these with the different circumstances exhibited by the three manures in regard to putrefaction, mechanical form, &c. This it appears to me is all that can be accomplished by a scientific investigation, in the present position of the statement; but before concluding, I shall endeavour to point out a few circumstances which I think well merit the attention of those engaged in the cultivation of these crops; for there can be no doubt that, in order to render any examination of this kind perfect, theory and practice must go hand in hand, and mutually corroborate each other.

If, before proceeding to detail the steps of the process used in analysing the three manures, it will be necessary to explain the reasonings upon which the method was founded.

In the *first* place, it is evident that a perfectly accurate analysis was not required, on account of the impossibility of instituting any accurate comparison between the three, founded upon minute proportional differences. For it is obvious that, from the very varying constitution of such a complex substance as manure, it is utterly impossible that any analysis can serve to denote the *proportional* constitution of the species, but can merely apply to the *individual*; nay more, in the case of the mass being considerable, an analysis of one hundred grains can, properly speaking, denote *accurately* the constitution of no other one hundred grains in the whole mass, because it is evident that so small a quantity, unless carefully selected, may consist of a few only of the many ingredients which constitute the entire mass. Considerations such as these at once must prove the inutility of performing an *accurate proportional* analysis of manure, for the purpose of comparing one or more species with each other.

It may, however, be argued, that all these difficulties could be avoided by analysing a large mass, say several pounds, of the specimen, in place of trusting to the results obtained from one hundred grains. But a little reflection will prove that, in point of fact, all the objections apply here, as elsewhere, with equal force. For, taking it for granted that such an analysis were performed, —which, however, is far more difficult than one might at first imagine, especially if it be desired to render it by any means accurate,—still when a comparison was about to be made, would not the composition be stated by percentage? and consequently the results would differ merely by some fractions of a grain, provided at least that the 100 grains were carefully chosen, and consequently the result would still refer *accurately* merely to the *individual* specimen. On these accounts, therefore, it is clear we can only judge from the *general* result of the analysis, and must not take into account *minute proportional* differences.

Again, there are many serious objections to the application of the ordinary methods employed in the analysis of organic bodies; for example, the usual plan adopted for examining vegetable substances, is to determine the relative proportion of the various proximate principles, which are more or less common to all, and which is effected by

dissolving them in succession in various menstrua. Such an analysis, however, would be utterly useless in the present case, for the following reasons. When we analyse a manure, it is of course for the purpose of ascertaining its fertilizing effects, which depend upon the four following circumstances. 1st, The quantity of organic matter which it contains. 2nd, The proportion of this which is already soluble. 3rd, The condition of the remaining portion, as regards its *tendency* to become soluble. 4th, The constitution of its saline matter.

Now, the only liquid solvent which exists in soils is water; it is clear, therefore, that ascertaining the proportion of any manure which is soluble in alcohol or ether, would be so much labour lost; neither could it be of any practical utility to determine the proportion of saccharine matter, gum, fecula, and the like, of which the vegetable portion is made up, as all these are decomposed, and become converted into entirely new compounds, before they are taken up by the roots of plants for the purpose of their nutrition. It was therefore necessary that some other method should be adopted; and after careful consideration, the following process appeared to hold out the greatest advantages.

The quantity employed was 100 grains, selected with care sufficient to ensure its containing all the *characteristic* ingredients of the species. It was, *first*, dried at a temperature of 212° Fahrenheit. This removed all the uncombined water, and along with it the volatile salts of ammonia, if such existed, which latter were detected by their proper tests. The proportion of these was of course indicated by the loss of weight sustained by the specimen under examination.

Second, The next step was to ascertain the proportion of soluble matter, which was done by washing the dried mass with pure water as long as the liquid was coloured, allowing the insoluble matters to subside after each washing, and decanting the clear fluid carefully from the deposit. The residuum was then again dried and weighed, and the loss of course indicated the quantity of the manure that was soluble in water. The constitution of the soluble matter was not accurately examined, as it could be of no importance, considering that we are totally ignorant of the nature of the food of plants, farther than that it requires to be in the state of solution.

The next operation consisted in an attempt to ascertain the *tendency* which the remaining organic matter possessed to become soluble; this was accomplished by means of caustic potassa. It has been long ago proved, that alkalies aid greatly the decomposition of organic matter; in fact, when assisted by heat, they accomplish it in a few hours; and, moreover, as was to be expected, this solvent attacks first those portions which are decomposed with the greatest facility. It follows, therefore, that by acting upon any insoluble organic matter with caustic potassa for a certain length of time, and then ascertaining the quantity which has been rendered soluble, we obtain a sort of index of the *tendency* to decomposition possessed by the substance employed.

Third, The residuum was therefore next acted upon for a given time, by a given quantity of a solution of caustic potassa at a boiling heat, and the soluble matter again removed as in the former operation, when upon re-weighing the dried residuum, we obtained the proportion of organic matter rendered soluble by the alkali, and hence have an index to its tendency to decompo-

sition. This step of the process possesses also another considerable advantage, dependent upon the chemical action exerted between the alkalies and azotized bodies; namely, that it gives us some idea of the proportion of animal matter present by the proportion of ammonia produced during this operation; the utility of which is obvious, when we remember that the advantage possessed by animal over vegetable manures, and the relative value of such as contain both, depend in a great measure upon the quantity of azote or nitrogen which they contain. When we have proceeded thus far in our analysis, we have only to determine the quantity of organic matter still remaining, and the proportion of earthy and saline constituents.

Fourth, The residuum was therefore, in the next place, charred, so as to render it easily pulverizable, and the powder was then mixed with red oxide of mercury, and the mixture heated to a bright red heat; in this way, all the organic matter and oxide of mercury were driven off, and nothing was left but the earthy and saline matter of the manure: this was then weighed, and the analysis thus completed, with the exception of the saline matter, the constitution of which was still to be determined. As, however, quantitative analysis was not attempted here beyond what could be judged by the eye, on account of the extremely minute proportion in which some of them existed, a separate-portion was used, which was merely burnt to ashes without any previous preparation; this precaution was also rendered requisite from the fact, that a small quantity of the saline matter is invariably lost in the other processes, and likewise because the presence of the oxide of mercury is liable to produce alteration in the arrangement of the various acids and bases. The process employed to determine the constitution of the saline matter need not be detailed here, as it differed in no respect from that in ordinary use among chemists. It may be well, however, to remark, in reference to the saline matter, that it is generally supposed that the analysis of *ashes* cannot possibly give us a correct idea of the true constitution, as this is so liable both to be altered by the heat, and still more by the presence of charcoal, &c.; indeed, I have heard it remarked by an eminent chemist, that the analysis of ashes to discover any thing besides the saline bases, is "perfectly absurd." Strange, however, as it may appear, no other process has ever yet been had recourse to, nor indeed do I consider it necessary, on account of the following four considerations. 1st, The extreme difficulty of all other methods. 2nd, The much *greater* liability which exists in them to the occurrence of error, from the fact that most of our tests are more or less disigned by the presence of organic matter. 3rd, That the only saline combinations which have ever yet been discovered in plants, have contained acids which are either of *organic* origin (and hence produced by the plant itself), or of such constant occurrence, that no fertile soil exists which cannot supply them. 4th, That, with the exception of carbonic acid, no other acid except the organic ones *do* suffer decomposition; for, strange as it may appear to chemists, there is no doubt of the fact that sulphates, for example, are constantly found in the ashes of plants, although it is considered as a general rule, that these cannot resist the joint action of heat and charcoal. This fact I am certainly unable to explain, but its truth I have proved beyond doubt. In the following ana-

lysis, therefore, I have confined myself to the old way, namely, analysing the ashes, with the only difference that I tested the presence of carbonic acid before I applied the heat to the dried mass. Proceeding upon this method, I obtained the following results from the three manures in question.

Dairy Manure.—The mass from which the specimen was selected was of a dark brown colour, moist, and sufficiently putrified for practical purposes. The specimen itself was selected with care, from the parts where putrefaction had advanced to its requisite height, and many of the dry unfermented straws were removed, so that the whole constituted a very good portion for analysis.

1. One hundred grains having been accurately weighed, were exposed to a temperature of 212° Fahrenheit, so long as they continued to lose weight. The watery vapour which passed off was proved by the smell, and the application of a rod dipped in muriatic acid, to be mingled with the carbonate and hydrosulphate of ammonia. The whole loss amounted to 45.7 grains.

2. The residuum was now steeped in cold water for twenty-four hours, and the coloured solution decanted carefully, so as not to lose any material quantity of insoluble matter, and this process was repeated as long as the water was at all coloured, after which the insoluble matter was again dried and weighed. It had now lost nine grains more, so that this manure contains 9 per cent. of soluble matter, which, of course, will be chiefly organic, although it will undoubtedly contain the soluble saline matter likewise.

3. The residue now presented exactly the appearance of decayed straw, a considerable proportion of which was reduced to the condition of very fine fibres, owing to the softer parts having been removed by putrefaction. It was now acted upon by two fluid ounces of liquor potassæ, and, after standing some time, was raised to a boiling heat, and kept in a state of brisk ebullition for fifteen minutes, after which it was allowed to cool. The solution was of an intense brown colour, but similar in other respects to the watery solution obtained in the last process. Upon diluting it with pure water, a flocculent precipitate appeared, which was allowed to subside before decanting off the clear brown solution. The residue was then repeatedly washed with cold water, to remove all soluble matter, as well as all traces of potassæ, after which it was again dried and accurately weighed; the loss in this part of the process, amounted to 12.6 grains. During the boiling of the residuum with the potass solution, large quantities of ammonia were given off, thus proving the manure to be rich in azote.

4. The insoluble matter was now incinerated in a platinum crucible, subsequent to which it was carefully pulverized, and mixed with about four times its weight of red oxide of mercury, and the mixture heated to redness in a crucible of porcelain. Nothing but earthy and saline matter now remained, the loss in this process being 21.8 grains, thus leaving 10.9 grains for the weight of the saline and earthy constituents. The constitution of this manure may therefore be stated thus:

Water and volatile matter.....	45.7 grains
Organic matter.....	43.4
Saline and earthy matter.....	10.9

100 grains.

5. Another portion of the same mass of manure

was taken, and burnt to ashes in a Hessian crucible, and the ashes being removed, were acted upon by distilled water, which, after filtration, was subjected to a careful *qualitative* analysis, the *relative proportion* of each ingredient being judged comparatively by the quantity of precipitate yielded to their several tests: in this manner, the solution was found to contain muriatic and sulphuric acids, and soda, potass, and lime. The insoluble part was now acted upon by boiling muriatic acid, and the solution thus obtained was found to contain lime, and oxide of iron, and alumina; it likewise gave probable indications of the presence of phosphoric acid, but owing to the presence of alumina, it is extremely difficult to detect this acid with positive certainty. The portion still left undissolved consisted of silica and alumina.

6. A small quantity of the manure, carefully dried, was tested with muriatic acid, and proved to contain abundance of carbonic acid. The minute constitution of this specimen of dairy manure may therefore be stated as follows:—

Water, with carbonate of ammonia and hydrosulphate of ammonia.	45.7	grains.
Soluble organic matter.....	.9	
Organic matter soluble in caustic potass.....	12.6	
Organic matter destructible by heat.....	218	
Silica.....	}	10.9
Alumina.....		
Peroxide of iron.....		
Carbonate of lime.....		
Muriate of soda.....		
Muriate of potass.....		
Muriate of ammonia.....		
Sulphate of potass.....	}	45.77
Phosphate of lime.....		
Sulphate of lime.....		
	100	grains.

Stable Manure.—The specimen used in this case was well rotted, but had been allowed to dry considerably, and evidently contained sand as an accidental ingredient; in other respects, however, it was remarkably well suited for analysis.

1. One hundred grains were accurately weighed and dried as in the former case, during which process they sustained a loss of 13.5 grains; the watery vapour containing both the carbonate and hydrosulphate of ammonia.

2. The dry material was now washed repeatedly in water, which removed 11.5 grains.

3. The residue now presented the appearance of soil, together with a few remnants of straw, owing of course, to the adventitious presence of sand, and also to the putrefaction having gone to a greater length. It was now acted upon by two fluid ounces of liquor potassæ, and boiled for fifteen minutes. On diluting the cooled solution, very little of the flocculent precipitate made its appearance, which quantity was however allowed to subside before decantation; after repeated washing, the residuum, when dried, was ascertained to have lost 15.9 grains. During the action of the liquor potassæ, a copious discharge of ammoniacal vapours took place.

* N.B. The saline and earthy substances are placed as near as possible in the order of their quantity, that in greatest quantity being placed at the top of the list.

4. The material was now charred, pulverized, and mingled with oxide of mercury as before, and the mixture heated to redness in the porcelain crucible, during which operation 13.33 grains were lost, thus leaving 45.77 grains of saline matter; much of this, however, was obviously the mixed sand, as another hundred grains, when burned with equal care, left only 28.25 grains of ashes. The constitution of this manure, therefore, is:—

Water and volatile matters....	13.50 grains.
Organic matter.....	40.73
Earthy and saline matter....	45.77

100 grains.

5. Another portion of the manure was carefully burned to ashes, and these were treated as before, and found to contain: In the watery solution—sulphuric and muriatic acids, and lime, soda, and potass; in the acid solution—alumina, lime, and peroxide of iron, with similar indications of phosphoric acid, and there was left a considerable residue of silica.

6. A portion of dry manure was proved to contain carbonic acid. The particular constitution, therefore, may be stated as follows:—

Water, with carbonate of ammonia and hydrosulphate of ammonia.....	13.5 grains.
Organic matter soluble in water.....	11.5
Organic matter soluble in caustic potassa.....	15.9
Organic matter destructible by heat..	13.33
Silica.....	} 45.77
Alumina.....	
Peroxide of iron.....	
Sulphate of potass	
Sulphate of ammonia	
Sulphate of lime	
Carbonate of lime	
Muriate of soda	} in small quantities
Phosphate of lime	
<hr/> 100 grains.	

The large quantity of silica, alumina, and peroxide of iron, of course, depended upon the presence of the sand, which was evidently ferruginous. We may, therefore, I think, safely infer, that stable manure does not differ materially from that derived from dairies, in the quantity of saline matter it contains. The other differences will be spoken of afterwards.

Street Manure.—The specimen used in this instance was taken from the street deposit at Newington, from a heap which was in the act of being carted away by a farmer, who informed me that it was fit for use. The hundred grains were equally selected from what appeared the richest part.

1. The hundred grains lost in drying 26.1 grains; by the usual test, a very small quantity of carbonate of ammonia was detected, but there was no evidence of the hydrosulphate being present.

2. The quantity of matter soluble in water amounted to 1.1 grains only; in fact, the very first portion of water was scarcely coloured.

3. When acted upon by the two fluid ounces of liquor potassæ, as in the former cases, a dark brown solution was obtained, which, however, on dilution with water, was almost entirely thrown down in the form of the flocculent precipitate

before mentioned, and the organic matter which remained dissolved amounted to one grain.

4. The residue was now evidently little else than ashes and cinders, which, by heating with oxide of mercury, lost 11.2 grains, thus leaving sixty grains of earthy residuum.

The composition of this manure, therefore, is :—

Water and volatile matters.....	26.4 grains.
Organic matter.....	13.6 ..
Earth and saline matter.....	60.0 ..
<hr/>	
100 grains.	

5. The saline matter obtained from a separate quantity yielded: In the watery solution—sulphuric acid and lime, with a trace of muriatic acid and soda: in the acid solution—protoxide of iron, peroxide of iron, alumina, and lime, together with a residuum of silica, the addition of the acid set free large quantities of carbonic acid, evidently mingled with sulphuretted hydrogen.

The accurate constitution of street manure may be thus stated :—

Water, with a trace of carbonate of ammonia	26.4 grains.
Organic matter soluble in water ..	1.4 ..
Organic matter soluble in caustic potassa	1. ..
Organic matter destroyed by heat (chiefly coal)	11.2 ..
Peroxide of iron	} 60.0 ..
Protoxide of iron	
Silica	
Carbonate of lime	
Alumina	}
Sulphate of lime	
Sulphuretted hydrogen*	
A trace of muriate of soda	}
	100 grains.

So much for the three manures. I shall now proceed to detail the analysis of the potato and turnip, which was performed in a similar manner, with the exception that the whole organic matter was determined by charring, as, of course, in order to compare a crop with a manure, it is unnecessary to know any thing more about the organic matter than merely its quantity.

Potato.—The one selected was of the growth of 1839, but had obtained its full size. I did not consider it necessary to ascertain to which of the numerous varieties of the potato the specimen belonged, as the statement about the manures refers to the potato as a species, not to any individual variety.

One hundred grains in drying lost 73.34 grains, which evidently consisted of water only. The residuum, when burned to ashes, lost 26.07 grains, thus leaving .59 of a grain for the quantity of saline matter.

The whole potato was now burned to ashes, and the saline matter tested as before, the result of which proved that,—in the watery solution, there

* I have placed the sulphuretted hydrogen by itself, as it is not very easy to say how it is combined: the most of it will undoubtedly be united to the protoxide of iron; circumstances, however, to be mentioned hereafter, would lead us to suspect that it is partly also combined with lime.

were present, carbonic, muriatic, and sulphuric acids, and potass; in the acid solution, lime, alumina, peroxide of iron, and indications of phosphoric acid. The addition of the acid set free carbonic acid, and there was likewise a slight residue of silica.

The minute constitution of the potato therefore is :—

Water	73.34 grains.
Organic matter	26.07 ..
Carbonate of potass.....	}
Muriate of potass.....	
Sulphate of potass.....	
Carbonate of lime.....	
Phosphate of lime.....	0.59 ..
Silica,	}
Alumina,	
Peroxide of iron,	
Sulphate of lime,	
	a trace
	<hr/>
	100 grains.

Turnip.—A good sized white turnip was selected. One hundred grains lost in drying 90.47 grains. The dried mass, by heating with oxide of mercury, lost 8.95 grains, thus leaving .58 of a grain for saline matter.

The whole turnip was now carefully burned, and the ashes examined as before, when, in the watery solution, carbonic, sulphuric, muriatic acid, and potass, lime and sulphuretted hydrogen, were found; and the acid solution contained alumina, lime, and peroxide of iron; there was a slight residuum of silica, and the addition of the acid proved the presence of carbonic acid.

The whole turnip, therefore, was constituted as follows :—

Water with some peculiar odorous matter	90.47 grains.
Organic matter	8.95 ..
Carbonate of potass.....	} 0.58 ..
Sulphate of potass.....	
Muriate of potass.....	
Hydrosulphate of lime.....	
Silica,	} a trace
Alumina,	
Carbonate of lime,	
Peroxide of iron,	
<hr/>	
100 grains.	

For the sake of comparison, I have subjoined the two following tables :—

1. Table showing the quantity of the various constituents in the five substances analyzed.

	Manures.			Crops.	
	Stable.	Dairy.	Street.	Potato	Turnip
Water, &c.....	13.5	45.7	26.4	73.34	90.47
Organic matter—					
Soluble in water	11.5	9.	1.4	26.07	8.95
Soluble in potass	15.9	12.6	1.0		
Destroyed by heat.....	13.33	21.8	11.2	0.59	0.58
Saline matter	45.77	10.9	60.0		
	100.00	100.00	100.00	100.00	100.00

II. Table showing the relative proportion in which the various saline ingredients exist, 1 denoting the least quantity, and so on.

	Manures.			Crops.	
	Stable.	Dairy.	Street.	Potato.	Turnip.
Muriate of potass .....	..	5	..	10	8
Muriate of soda	2	6	1	..	..
Muriate of ammonia .....	..	4	..	..	..
Sulphate of potass	6	3	..	9	9
Sulphate of lime	4	1	5	1	..
Sulphate of ammonia	5	..	..	..	..
Carbonate of potass .....	..	..	..	11	10
Carbonate of lime	3	7	11	8	2
Phosphate of lime	1	2	..	6	..
Hydrosulphate of lime .....	..	..	..	..	6
Silica	14	10	12	4	4
Alumina	13	9	10	3	3
Peroxide of iron	12	8	14	2	1
Protoxide of iron .....	..	..	13	..	..
Sulphuretted hydrogen .....	..	..	4	..	..

When the figures do not proceed in regular order, it shews that there is a considerable difference between the quantities; as, for example, in the turnip, silica is marked 4, hydrosulphate of lime 6, and muriate of potass 8, the difference in quantity being greater than between the other ingredients.

III. We must now commence the argumentative portion of this examination, and endeavour, as far as possible, to account for the inferiority of street manure for raising potatoes, by comparing the manures and crops together. In the first place, therefore, I shall sketch the character of the three manures, and compare them with each other.

Stable manure.—I place this at the head of the list, on account of its being the richest and strongest of the three.

This manure (arguing solely from the result of the *chemical analysis*) is evidently one of great value from the following circumstances. 1st, It contains a very considerable proportion of organic matter already in a soluble state. 2nd, It abounds with animal, as well as vegetable matter. 3rd, The insoluble parts have a considerable tendency to decomposition; for caustic potassa rendered more than half soluble, in fifteen minutes. 4th, It contains saline matter, of a constitution capable of supplying the wants of every kind of crop. *Mechanically*, this manure possesses the advantage of being (when properly prepared) easily incorporated with the soil; and from its organic matter being *equally* dispersed throughout, it may be termed *uniform*, that is to say, it will enrich equally the whole soil through which it is diffused, and not confine its effects to a few points only.

We may hence conclude *practically*, 1st, That this manure will be excellent for all crops; because it contains the essential ingredients of them all; 2nd, That it will not require very much putrefaction; because it contains a considerable quantity of soluble matter. 3rd, That it will *keep up* an abundant supply of soluble matter; because the undissolved portions have a considerable tendency to decomposition. 4th, That it will incorporate, and diffuse its effects equally through the soil; because it possesses a mechanical form which permits of its ready mixture with any pulverulent substance. 5th, It will be found more economical on strong, than light lands, on account

of its *tendency* to decomposition. 6th, It will be a hot manure, on account of the quantity of soluble matter. 7th and *lastly*, It will not be a very *lasting* manure, on account of its tendency to become soluble, which will of course render it more liable to be washed away, and also, will hasten those final changes, by which all the best parts of a manure are rendered soluble in air, and thus escape in the form of gas.

Dairy Manure.—This agrees in many respects, with that derived from stabler, for, like it, 1st, It contains a considerable, though less, proportion of soluble organic matter. 2nd, It is composed of both animal and vegetable substances. 3rd, The insoluble matter possesses a considerable tendency to putrefy, although not to the same extent as stable manure, for caustic potassa dissolved little more than one-third of the organic matter during fifteen minutes' ebullition. 4th, Its saline matter is equally applicable to all crops. 5th, It possesses precisely the same mechanical form, and consequently will diffuse its effects with equal facility.

We may therefore conclude, *practically*, 1st, that this manure will answer every purpose to which stable manure is applicable, except when a very *hot* manure is requisite. 2nd, That it will be better than stable manure for light lands, as it is less readily decomposed, and 3rd, That, from the same circumstance, it will be a more economical manure for the general use of the farm, as its effects will last longer, or in other words, because, from its more gradual solution, it will supply the plants for a greater length of time with nourishment prepared for their use, and less will be apt to be lost by undergoing total decomposition; for it must be always remembered in speaking of manures, that the changes which render them most serviceable to plants, take place during the *early* periods of putrefaction; so that they may be rendered comparatively useless by being allowed to pass beyond this point.

Street manure.—Now, let us see what we can make of street manure. Are the following words, "while it is nearly *equally* efficient in producing turnips, and some other descriptions of crop," which occur in the society's notification, to be understood *literally* or not? If so, we might almost be disposed to declare, that, of a truth, scientific examination is altogether useless; for if by the term *equally* efficient, it is meant that they are of the same value, ton for ton, what a fearful waste of manure must annually occur! For, from the analysis above recorded, street manure does not contain one-third of the organic matter possessed by the other two, and a considerable portion of this third consists of *coal*! Surely the meaning of the above quotation must be, that street manure applied in the ordinary manner, produces an effect nearly *equal* to an ordinary dressing of the other manures. In which case the fact is more explicable, as I have been informed that *double* the quantity of street manure is used, and that it is applied almost every year, which, of course, makes a most material difference, as then we shall, at all events, have about two-thirds of the quantity of organic matter contained by the others, especially when we take into consideration its more frequent application.

From its *chemical analysis*, we may conclude, 1. That it contains soluble organic matter in small quantity. 2. That this matter is a mixture of animal and vegetable substances. 3. That the soluble organic matter does not possess any very great tendency to decompose, for caustic potassa

dissolved but little of it. But, that a considerable quantity would in time become soluble, was proved by the fact, that the strong potassa solution was of a dark colour, and there was a copious deposition of flocculent matter upon dilution. And I may here remark, in reference to this flocculent precipitate, that it gives us an additional index to the decomposing tendency of the manure; for as strong caustic potassa acts much more powerfully than a weak solution, so, by the former, much organic matter is dissolved which would remain unaltered in soil for a much greater length of time than those portions which are dissolved by a weak solution. The precipitate, therefore, which appeared, of course consisted of these less destructible parts, and, consequently we may conclude from their presence, that the tendency to decomposition is not nearly so strong. In accordance with which it will be observed, that very little precipitation took place upon diluting the potass solution of stable manure, where, as before stated, the tendency to putrefaction was very strong. 4. Its saline matter contains one or two very dangerous ingredients, namely, iron and sulphur; both of these, indeed, occur in the other two, but in less quantity, and, moreover, the iron is in the much more harmless state of peroxide; here, however, the protoxide exists also, and, from the quantity of sulphur present, there can be little doubt that the two exist in a state of combination. This compound, so long as it remains unchanged, is not injurious to plants, but, unfortunately, such is by no means the case, for, when exposed to the joint action of air and moisture, which are exactly the circumstances in which it is placed in this manure, it is very apt to undergo an entire change, especially when combined with a similar compound of the peroxide of iron, whereby it becomes soluble, and in this state is an active poison to most plants. This change would undoubtedly take place very frequently, were it not for the presence of a considerable quantity of carbonate of lime, which acts as a preventive, by decomposing the injurious compound as soon as it is formed. Nevertheless, its presence renders the manure a dangerous one, especially in situations where the carbonate of lime is requisite for other purposes, as, for example, in sour peaty soils. The large quantity of lime, together with the presence of sulphur, may, however, be one of the chief reasons of its efficacy in raising turnips, as we shall endeavour to explain presently. In other respects, the saline matter varies but slightly except in quantity, from that of the other two. 5. Mechanically, street manure differs considerably from the other, and this point must be particularly adverted to. It may be observed, in the first place, that whereas the saline matter of the other two constitutes a part of the various organic substances composing them, and consequently they may be said to consist altogether of organized matter, in street manure by far the greater part of it is altogether extraneous: or in other words, while dairy and stable manure belong to the class of vegetable animal manures, this is included in the mixed, or those which are composed of organic and mineral substances. On this account, the organic matter is by no means equally spread throughout the mass, and consequently the manure may be considered *partial*, or one which, however well incorporated with the soil, would be very apt to fertilize certain spots, much more than others in the immediate neighbourhood. Moreover, the form of the mineral matter is likewise very bad, for, in addition to ashes, it contains a considerable quantity of

cinders, each of which will act as a mineral sponge, and absorb a certain quantity of soluble organic matter, which until the whole is soaked with water, so as to allow the soluble matters to percolate through it, is rendered comparatively useless, as the tender fibrils of the roots are readily turned from their course by resisting substances, and therefore are by no means likely to push through the pores of a cinder. From all these circumstances, therefore, it appears to me, that it will require far greater ingenuity to prove why it is a useful manure for turnips, than to explain why it fails in raising good crops of potatoes; the only real valuable quality which it possesses being, that it is much more highly azotised, in proportion to the whole organic matter which it possesses, than any other two; for it will be observed, that carbonate of ammonia was distinctly found in it, although it contained little more than two per cent. of organic matter, soluble either in water or potassa, which two menstrua are capable of dissolving nearly all the azotized compounds generally met with in manures. The cause of this large proportion of azote must depend upon the ordure which it contains as a constant ingredient.

To sum up in a few words, therefore, we would say—that *stable manure* is the most heating, but is not so durable—that *dairy manure* is cooler, and much more lasting—that *street manure* is very inferior to the other two in every respect, and, in fact, would be little better than soil, were it not for the highly azotised nature of its organic matter, and probably also for the presence of a considerable quantity of chalk.

We shall now give a short account of the crops themselves, and see what light they will throw upon this unquestionably most difficult and intricate subject.

The potato is a plant which possesses a branched stem and *spreading* root, which, when it first commences to grow, is in most respects similar to other roots, but after the plant has attained a considerable size, tubercular masses form in various parts of its fibres, which increase rapidly until the plant arrives at perfection. Now, since it is for these tuberculous bodies that the crop is cultivated, it must be observed that the most important part of the crop is *produced* at a late period of the growth of the plant. With regard to the chemical composition of the plant, a few words will suffice, as it throws very little light upon the subject, farther than showing how small a quantity of manure is *absolutely* required by any crop. Nearly three-fourths, for example, of this plant is composed of *water*. The saline matter likewise of the potato is of a constitution, the ingredients of which occur in every soil. With regard, however, to the *ultimate* constitution of its organic matter, I may observe that it contains a considerable quantity of azote, as has been proved by the accurate analysis of M. Boussingault, who has performed so many careful ultimate analyses of all species of crops, that I did not think it requisite to repeat them, especially as, in addition to their extreme difficulty, they require very expensive apparatus, none of which I at present possess. From the result of his examination, it appears that the potato contains $\frac{17}{100}$ per cent. of azote, and that its leaves also contain $\frac{100}{100}$ per cent. of the same substance.

We may hence argue that a manure, to suit well for the potato crop, should possess the following qualities:—1st, It must be spread equally through the soil, so that the spongioles at the termination

of all the *spreading fibres* of its roots may be supplied with nourishment. 2d, It must yield azote during the *whole* period of the growth of the plants; in fact, rather more is required during the *latter* periods than prior to the development of the tubers; for, from M. Boussingault's analysis, it appears that they contain $\frac{1}{100}$ per cent. more of this substance than the leaves. In an economical point of view, therefore, the best manure for potatoes would be one which contained plenty of azote, but still did not decompose very rapidly; dairy manure for example.

The turnip.—This plant, on the other hand, has a very close root, and is cultivated for the fleshy part of the root, which begins to increase very shortly after it has attained any considerable size. In regard to its chemistry, there is one important point to be borne in mind, namely, that its saline matter contains one salt of by no means constant occurrence,—I refer to the hydrosulphate of lime, or sulphuret of calcium, as it should more properly be called. Now, of late, considerable stress has been put upon the existence of these peculiar saline compounds which occur in some crops; and it has been asserted, with very great plausibility, that they are quite essential to the growth of the plant, and that their absence is fatal to the success of the crop. Consequently, if this statement is strictly true, the most important requisite for a manure for turnips is its containing a supply of the hydro-sulphate of lime; and likewise, from the closeness of the roots, a uniform manure is not *absolutely* necessary, as this plant will draw most of its nourishment from a comparatively small extent of soil. By ultimate analysis, M. Boussingault has shewn that the turnip contains considerably less azote than the potato, the proportion being only $\frac{1}{100}$ per cent.; so that by no means so large a quantity of this substance is required; and lastly, the crop contains a very small proportion of dry organic matter, namely, less the 9 per cent. in the specimen I examined.

When any quantity of street manure is ploughed into good soil, the following changes will take place. The ordure and carbonate of lime—which are evidently the most powerful ingredients of this manure—will re-act upon the less decomposable organic matter, both of the soil and the manure itself, and thus bring the whole into a state of fermentation, the extent and intensity of which will be regulated by the quantity of these active ingredients, especially the ordure. This action depends upon the fact, that when any organic substance in a state of fermentation is brought into contact or mingled with any organic matter capable of fermenting, but not at present in that condition, the whole mass, after a time, undergoes the same series of changes, which are always accompanied with the escape of various gases, and the formation of certain soluble compounds, which latter constitute the chief food of plants.

Moreover, it has been long ago proved, that substances rich in azote are always the most prone to decomposition, and likewise are capable of exciting fermentation to a far greater extent in others of a less putrescible nature. Again, it is well known to farmers that chalk, or carbonate of lime, possesses the power of increasing the putrescent tendency of many vegetable substances, so that when applied to soils it renders them *richer*. But what is curious enough, at the same time that it causes the production of soluble matter by promoting putrefaction, it renders less soluble those portions already in a state of solu-

tion, by entering into chemical combination with them. On these accounts, therefore, and especially from the ordure being a very highly azotised substance, street manure will be capable of exciting putrefaction to a greater extent, considering the small quantity of organic matter which it contains, than one would at first sight be led to suppose. It must, however, be remembered, that as the putrescent effect will only be produced in the immediate neighbourhood of the active ingredients themselves, and as, moreover, these are mixed with a large quantity of other comparatively inert matters, this action is very liable to be confined to certain spots. Owing, likewise, to the presence of cinders, a certain portion of the soluble organic matter will be absorbed by these, and thus, for a time at least, removed beyond the reach of plants. But, on the other hand, it will be observed that from the highly azotised nature of its organic contents, the fermentation will be *rapid at the first*, and consequently the manure will be hot in proportion to the quantity of real manure which it contains.

Of the other two manures I need say little more than has been already remarked; after they are ploughed in they will of course excite fermentation in the vegetable portions of the surrounding soil, and thus a steady supply of soluble manure will be kept up for a greater or less time, according to the quantity employed and the other circumstances already mentioned when comparing these manures together; and owing to their being wholly organic, the fermentation will be more equally diffused throughout the soil. How is it that street manure, which as we have seen does not contain one-fourth the quantity of organic matter, is, nevertheless, nearly *equally* useful for raising turnips as that derived from dairies and stables.

The following reasons will, I trust, explain this satisfactorily.

1. It will be observed that in manuring turnips it is not necessary to use any very great *quantity* of manure, but that used must possess certain qualities, the chief of which is this: it must contain a considerable quantity of soluble matter *produced* by fermentation; which fact is evidently proved by the following considerations. We all know the immense value of bone-dust as a manure for this plant, and it must likewise have been a matter of surprise to many how small a quantity will produce a large crop. The same remark refers equally well to rape-dust; and in regard to farm-yard dung, Professor Low distinctly says, in speaking of the turnip crop, that it must be "*well rotted*." Now, bone-dust, rape-dust, and *well-rotted* dung, agree remarkably in the following characters, viz., that they contain a large proportion of organic matter already in a soluble condition, and likewise that, while the two former *speedily* ferment after they are ploughed in, the latter is already in that condition when it is first applied. From this, therefore, it is evident that the great requisite for a good manure for turnips is this: that it must be soluble, and either capable of entering *rapidly* into fermentation, or already advanced to that condition. *That street manure possesses this requisite, we have already endeavoured to prove.*

2. A manure for turnip must contain the hydrosulphate of lime, or at least be capable of supplying the elements of that salt; for it is self-evident that, since this substance exists in the plant (considering that neither of its constituents are of *organic* origin), it must be supplied to it

either by the soil or the manure. And as this salt exists in the root, which is the first part of the plant that issues from the seed, it is equally evident that a supply of this salt or its element must be at hand when the seed is sown. Here we have another reason why dairy or stable manure must be *well rotted* before they are in a fit state for the turnip crop; for in the recent state, the sulphur which they contain is not in a condition capable of being absorbed by plants, but, as our analysis has proved, when *rotted* this element exists in a volatile form, as the hydrosulphate of ammonia, so that it can be absorbed either in the form of solution in water, or in air; and since, moreover, both these manures contain carbonate of lime, or, at all events, since most if not every *soil* contains this substance, we thus have a supply of the elements of the hydrosulphate of lime ready for the plant as soon as it begins to push forth its root. *Our analysis has proved that the elements of this substance are contained in abundance by street manure.*

3. As before mentioned, the turnip possesses a close root, and, therefore, is capable of being nourished by a manure which, like street manure, is liable to confine its effects to certain spots.

We then see that the street manure of Edinburgh is remarkably suitable, in several respects, for the culture of the turnip crop, and, consequently, it is not surprising that, although by no means what can be properly termed a *rich manure*, it should be capable of producing fair crops of this valuable article of food.

Let us now, in the last place, answer the following question: How is it that the street manure of Edinburgh is inferior by about *one-third* to that obtained from stables and cow-houses for the raising of potatoes?

The following considerations will, I think, fully answer this question:—

1. In the account of the culture of the potato, given in Professor Low's excellent work upon Practical Agriculture, we find the following expressions:—1. "Dung will in all cases act most quickly upon young plants when it is well prepared, but extreme preparation of the dung is *not required* in the case of the potato. It is enough that it should be in *such a state of fermentation as that it may be readily covered by the plough.*" Thus proving that this plant does not require an instant supply of a considerable part of soluble matter. And, moreover, it is clear, that as the useful part of this plant is produced during the *later* periods of the growth of the crop, the greatest supply of food will be necessary at that time. But we have already shewn, that street manure, from the nature of its constituents, ferments *very rapidly at first*, and, consequently, its *greatest effects* will be in the very *early* periods of the growth of the crop. 2. The next sentence in Mr. Low's work commences thus,—"*The potato requires a large supply of manure.*" But we have already shewn, that street manure does not contain *one-third* as much *real manure* as either that derived from dairies or stables. 3. And a little below the above quotation occurs the following sentence,—"*Lime does not appear to act in a beneficial manner, and is rarely applied directly to this crop.*" But our analysis has proved that *lime* exists in *considerable quantities* in the street manure of Edinburgh; and as it has been exposed to great heat—for it is evidently derived from the ashes—it will, of course, be in the same state as *mild lime* when it is applied, and will, most probably there-

fore, have the same effect, which, according to Mr. Low, is "*not beneficial.*"

2. The potato, as we before stated, possesses a spreading root, and, consequently, must require a *uniform manure*, in order that all its parts may be equally supplied with soluble organic matter. But we have before shewn that street manure is *partial*.

3. The potato requires the greatest quantity of azote at the *later periods* of its growth; because the tubers contain considerably more of that substance than the leaves. But street manure, from the nature of its organic constituents, will ferment rapidly, and allow most of its azote to escape during the *early* periods of the cultivation of the crop.

These, therefore, appear to be the reasons why the street manure of Edinburgh is not so applicable to the potato as to the turnip-crop; and lest any one should suppose that these differences may be too trifling to cause an inferiority amounting to *one-third* of the crop, I beg leave to quote the following passage, from the 41st Number of the Quarterly Journal of Agriculture, page 78, which, although not directly connected with the subject of this paper, will shew how apparently trifling a circumstance produced nearly an equally great difference in the potato crop. In mentioning some experiments by M. de Dombasle upon "*earthing up potatoes,*" the following one is quoted:—"Eight rows of potatoes were horse-hoed, some little time thereafter they were earthed up, and when five inches high they were again earthed up. Other eight rows, in the same place, and under exactly the same circumstances, were only *horse-hoed* at the same time with the others, but received *no earthing-up* or subsequent culture. The rows that were earthed-up, looked more vigorous and thriving; but on taking up the crop, they weighed only about 1222 lb., whereas the eight rows that were *not earthed-up*, produced 1408 lb." Now, here there is a difference of nearly 200 lb. in eight rows of potatoes, produced by the mere difference, that, in the one set, the plant was a few inches deeper in the soil than in the other!

Conclusion.—At page 348 of this essay, I stated that, before concluding, I should endeavour to point out a few particulars, which well merited the attention of those practically engaged in the culture of these crops. This I shall accomplish by shewing the different circumstances, the knowledge of which would be requisite before the above statement of the inferiority of street manure for raising potatoes, or its utility for the turnip crop, could be considered as *absolutely* proved.

It would be requisite, in the *first* place, that the soil experimented upon should not only be of the same *nature*, but it must be under precisely similar circumstances of exposure or shelter, of dryness or moisture, of inclination or levelness; and, in the case of its being sloped, this ought to be in the same direction.

Secondly, The experiments with the different manures would require to be made in one season, in order that the weather might affect all in an equal manner.

Thirdly, The seed must, of course, be from the same parcel.

Fourthly, The *depth* at which the seed is sown, would, from M. de Dombasle's experiments, appear to be of the greatest importance.

Fifthly, The manures must be equally prepared; and,

Lastly, The crops themselves would require to be examined chemically, as it is far from improbable, that some manures may *apparently* produce better crops than others, when, upon chemical examination, they would be found to contain an *equal* quantity of true nourishment,—the additional weight depending upon the presence of a larger proportion of water; for there is no doubt of the fact, that different soils, and very probably different manures likewise, have the effect of rendering the crops drier or more watery, as the case may be.

The necessity of all these precautions, might, very probably, deter many persons from attempting any experiments of the kind; but every difficulty would be overcome, were the experimenters to take time for collecting facts, and, during each year (without in the least interfering with their ordinary pursuits), merely make out a register of *all the circumstances* connected with their various crops. They would thus, in a comparatively short space of time, collect such a multitude of facts, that a careful comparison of these would, undoubtedly, lead to many most important results, both in reference to the science as well as to the practice of agriculture.

That these pages may have the effect of inducing some few practical men to pursue this inquiry, is the earnest wish of the author. And should any of the hints he has thrown out be the means of guiding them to a successful conclusion, he will consider himself amply repaid for the many hours which he has occupied in examining the subject.

THE EPIDEMIC.

SIR,—The prevailing epidemic among cattle, horses, pigs, &c., having spread its direful effects in the country, I venture, through the medium of your journal, to offer some remarks on the disease, merely for public good. The symptoms I have found to vary materially, but the successful treatment not so much so. In neat cattle some have been seized with stiffness of the limbs, resembling what in some places is called cripple felon; others swollen in the feet, but mostly caused by long driving, they have cast their hoofs, they pine in condition rapidly, some with swollen eyes, cheeks, and tongues; they suddenly become hidebound, soreness on the chine and on the length of the back; in one particular case, the ears and tail of a cow rotted off; but all cases as yet have, by continued care and repetition of the doses, recovered. The mode of treatment I have pursued is to give 10, 12, to 16 ounces of Epsom salts, 3 or 4 ounces of sulphur, 1 drachm of camphor, 1 drachm of tartarised antimony, and 1 ounce of finely ground black pepper, mixed in 2 quarts of new malt-beer. The dose must be varied and repeated in proportion to the state and size of the animal.

Horses have generally been found with stiffened limbs, which alternately swell, or all four; swollen eyes, with a watery discharge, sometimes the uvea considerably enlarged. The treatment—bleeding, purging with castor oil and Epsom salts, blistering when required.

Pigs, those giving milk, have been seen dragging their limbs after them, and both young and old pining away. Repeated doses of gum assefetida and common salt has succeeded; and I have reason to believe that milk from diseased cows will infect them.

These observations are communicated to the public with a desire to obviate the losses to which farmers and graziers have been subject.

Yours, &c.,
R. CROSS.

Nafferton, near Driffield, Yorkshire, Aug. 24, 1840.

THE WIRE-WORM.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In your paper of this day's date, 17th August, is a letter from a "Cumberland Yeoman," on the subject of the wire-worm, wherein he very wisely shows, how to ascertain the real nature of any and every grub infesting the growing crops. Were agriculturists generally to search more into the causes of the loss of their standing corn, and endeavour to ascertain, by observation, or through the instrumentality of some person who may have made entomology his study, they would quickly distinguish the different destructive larvæ, nor mistake the grub of the "Harry-long-legs," (*Tipula olaracen*) for the real Simon Pure, or "wire-worm." The former is well described by your correspondent; "the latter is of a slender cylindrical form, of a fulvous colour, with six legs, but so short as to be hardly visible beyond the sides of the body." The true wire-worm, is the larvæ of the click-beetle, skip-jack, spring-beetle &c., for it has many provincial names, but the scientific term is "*Elatea segetis*."

This little creature is an indiscriminate feeder, turning his attention and his destructive mandibles, alike to the roots of wheat, rye, oats, barley and turnips, whole fields of which have been occasionally sacrificed to its depredations. The eggs of the insect are laid in the ground, hatched into the form of the wire-worms in which second stage of their existence, they remain five years. This lengthened duration of their eating state, easily accounts for the loss of the farmer being continued more than one year.

Sometimes they have been known to lay bare wide tracts of meadow land, by feeding upon the roots of the grass. Starvation suggests itself as the probable cure. Could not this be effected by allowing the land infested with them, to remain fallow for a season? Possibly a month, or two at the most, would suffice to check their insatiable appetites. Heavily rolling the land, by compelling them to leave their under-ground haunts for the surface, thus becoming a prey to birds, might possibly aid the cause of extirpation.

The farmers' clubs now establishing through the length and breadth of the agricultural districts, by setting local enquiries at work, will greatly assist the occupiers in removing all nuisances.

Pardon this my trespass upon your time, and believe me to be, Sir, your obedient servant, and constant reader,

P.
Stokefene, Norfolk, Aug. 17.

ON BOILED BARLEY.

MR. EDITOR,—Am I to understand that H. S. considers four bushels of boiled barley an equivalent to the four bushels beans and four bushels oats? Perhaps he will be so kind as to inform me if he steeps the barley *any time* before boiling, and how long he considers it necessary to be boiled.

The work of my horses is chiefly on the road, they are in good condition, but then I feed them with hay, grains, and one-and-a-half bushel of cracked barley each horse. If your correspondent will be so kind as to reply to my queries, I shall feel greatly obliged to him, and be induced to try the experiment.

I am, Mr. Editor,

Yours very much obliged,

15th Aug.

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A SINGULAR CASE OF CALCULUS IN A HORSE.

BY MR. W. RICHARDSON, V. S., PETERBOROUGH.

(From the Veterinarian.)

A brown cart horse, thirteen years of age, the property of Edward Compton, Esq., was attacked on the evening of Friday, June 5th, 1840, with symptoms of colic, and some antispasmodic medicine was sent home by the servant for him.

I received a message on the following morning from Mr. C., informing me that the horse was still in pain, and requesting me to ride over and see him. On my arrival, I found him down, but not apparently suffering very acutely. His pulse was not more than 45, and full; his ears and extremities were warm, and his breathing was not materially affected. He had been seen to stale, but no dung had been ejected since prior to his attack on the previous evening. I immediately examined him per rectum, and succeeded in withdrawing several pieces of hardened feces, which were thickly coated with inspissated mucus. Some purgative medicine was administered, combined with ammon, subcarb, and zingib. A stimulating embrocation was applied to the abdomen. Enemata were ordered to be thrown up, and some linseed gruel to be offered him.

I saw him again in the evening. The medicine had not operated, though a rumbling noise was heard in his bowels. No feces could be felt in the rectum, the pulse was not altered, the ears and extremities were warm. Repeat the medicine, injection, and embrocation.

JUNE 7TH.—The medicine had not operated, although Mr. C. had given him a bottle of oil during the night. A slimy offensive mucus adhered to the tongue and fauces—there was constant turning up of the upper lip, and he was continually sitting upon his haunches. The ears and extremities were icy cold—immense distension of the abdomen—the pulse not perceptible—and every symptom of approaching death. I told Mr. Compton that I had not the slightest doubt that the animal was suffering from a calculus or calculi in the intestines; a view of the case which subsequently proved to be correct. He soon afterwards died; and on examination after death the following appearances presented themselves.

The intestines were immensely distended with air. The cæcum did not contain a single particle of food, either in a solid or liquid state. At the right curvature of the colon, not far from the ensiform cartilage, was a rupture, and upon the parietes of the abdomen was lying a calculus, presenting in shape the exact appearance of the intestine itself at the part where it was situated. The outer surface of it was beautifully smooth, and resembling marble. The peritoneal covering, both of the intestines and of the stomach, portrayed no symptoms of inflammation, and the inner surface was perfectly healthy.

The contents of the stomach, and throughout the whole course of the intestinal canal, until within a short distance of the place at which the colon terminates in the rectum, were perfectly fluid, shewing that the medicine which had been administered had performed its office; but here a stop was put to its farther progress, for another calculus was so firmly fixed in the intestine at this part, as to set at nought the power of medicine and the skill of man to remove it. It was firmly imbedded in a

quantity of silicious matter, some portions of which were adhering to its outer surface, and having the appearance of small crystals of sulphate of magnesia.

The feces beyond this were hard and dry; but within about twelve or fourteen inches of the termination of the rectum was a patch of inflammation in the villous coat of the intestine, occasioned, I have no doubt, by a lump of hardened feces which was deposited there. With the exception of this solitary stain, and where the calculi were deposited, the whole of the intestinal canal presented a healthy appearance.

The diaphragm was in a complete state of emphysema.

The liver was remarkably soft, and of a clayey hue. The kidneys had entirely lost their structure, particularly the one situated on the left side, which merely required the slightest pressure of the finger to break down its texture in any direction. They were both filled with a thick purulent matter, resembling coagulated urine.

The pleura and the lungs shewed evident symptoms of chronic disease, and the heart was the largest I ever saw, weighing nearly eleven pounds. The walls of the right ventricle were not much thicker than a stout sheet of paper, while those of the left were, I should say, nearly four inches in thickness.

This horse had been in the possession of Mr. Compton for eight years, and during the whole of that period he had never had a day's illness, nor had he been rested a single hour on supposition of such being the case.

The largest calculus, and found where the intestine was ruptured, weighs 3 lbs. 13 oz., the smaller one 1 lb. 8 oz.

ON THE EFFECT OF CRUSHING OATS.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Being convinced that both reason and common sense were in favour of crushed oats being more nourishing for horses, as food, than grain in its natural state, passing, as it does often, through the bowels without mastication, I am surprised to find, after repeated trials, that it is less nourishing in the bruised state than when given whole, and my horses uniformly all off in strength and condition when bruised oats are used. Can it be that mine are bruised too much into meal? Any information on this point, or on the advantages of cutting hay, straw, turnips, &c., from any of your readers, would oblige, yours,
BRUISED OATS.

North Britain, 26th July.

SIR,—In answer to your correspondent who signs himself "Bruised Oats," I have to express my entire concurrence in the views entertained by him regarding the use of crushed oats. I cannot give him a satisfactory or scientific reason for the cause, but after several years practical experience, I have found out that oats crushed, and hay cut, are not by one half so nourishing as when given to horses in their natural state. Without entering into the cause of this effect, I would recommend all persons who have the management of horses to try both plans for a short time, and experience will very soon point out which is the best. I am Sir, your most obedient servant.

ANTI-BRUISED OATS.

Edinburgh, 25th August.

TREES AND TIMBER.

In our paper on trees, some weeks ago, we ventured to recommend the planting of Scotch fir, as a species of timber likely soon to come into extended use from a new demand for it in our large towns, for paving the streets. This new kind of pavement is already common in London. It is also begun to be used in Manchester; and we have just seen a gentleman who was invited a few days ago to inspect a vast establishment now erecting in Glasgow for sawing Scotch fir to pave the streets of that city. Our smaller towns may very soon follow the example.

Moreover, the marshy and soft parts of our public roads may yet be laid with wood; and in any long severe pulls we can scarcely expect less, in this age of improvement, than that at least one track of timber planks will be laid down for the wheels after the manner of a railway, as we have seen stones sometimes used: stones are hard and *dumling*; but wood is easy for the horses. Let our country proprietors, then, pay some attention to this matter, and weigh the probability of a large demand for Scotch fir.

As the timber is otherwise of steady value, they can hardly do wrong in planting a good deal more of it than for many years they have been doing.

After a breadth of fir of any kind has been cut over, it becomes a point of consideration what is to be done with the vacant ground. Many proceed immediately to plant it anew. They had better not.

Myriads of insects peculiar to wood have been bred and fed in the place, during the growth of the preceding crop of trees, and if young trees are planted immediately, they are sure to fall upon them, and in all probability mar their progress at once. We know, within six or eight miles of our own town, a breadth of wood which, two years ago, was planted on newly cleared ground, and instantly assailed and utterly destroyed by the vermin referred to. A space of at least a couple of years should be allowed to elapse before any ground, cleared of a crop of timber, be replanted. In this time the destructive insects have either perished on the spot, or are completely dispersed. Moreover, from the shaking of the trees, with the roots running through the earth, a great looseness and dryness of the soil takes place as a matter of course. Now, two years is by no means more than enough of time to allow this loose soil to settle down to the firmness of its original and proper state. The crops of long grass, which spring up in the meantime, besides fertilizing the place as they rot, are ruinous also to the special insects which haunt the spot, and thus make double preparation for a new planting. Now is the time also for the proprietor to see that new drains are put into the vacant ground, if any are required.

In replanting land which has been cleared of timber, it is a point of great importance not to put the same kind of trees upon the same ground; but to change the crop. Never plant larches where larches have already grown; but they may come very well after Scotch fir. In the same way oaks, Scotch spruce, and silver firs may succeed larches. Where a great breadth is to be laid down—whether new or replanted—we need scarcely point out to proprietors the necessity of having plenty of well-made roads, not only through such plantations, to get thinnings and future timber easily carried off, but also through the contiguous grounds, that tenants may not be afterwards annoyed by having their fields cut up, nor heart-burnings raised between them and their landlords or the wood-merchants.

One of the greatest errors in the management of young plantations of hard wood, is too much pruning.

We would boldly say at once, let there be no pruning whatever. Lateral branches are quite indispensable as feeders for the future growth of the tree. Whatever superfluity there is in this way, nature will throw it off in the shape of decayed branches, and relieve herself. The young stem will thus, moreover, be kept free from those unsightly sores which follow pruning, and which are constantly breaking out into as many feathery sprouts as more than exhaust all the quantity of sap and strength that the unlopped legitimate branch itself would have done. The great point is to relieve your young hard wood by early and careful thinning of the larches, and other soft trees put in for sheltering nurseries. By no means let them grow up to such an age near your young oaks, as that their resinous juices shall drop on these oaks, and cause sores, as they seldom fail to do.

Whether it is cheaper and better for a country laird to plant his land with the seedlings from the nursery, or proceed at once to dibble his acorns and thus rear his trees from their very first germ? The latter mode, including the expense of dibbling, costs only about £1. 5s. per acre; while the expense of the former mode cannot be less than £3. 10s. Be it remembered, however, that there is much time lost in the very slow growth of the acorn to the plant, which, on a fine soil, is a most important consideration. Upon the whole we would decidedly advise that, on all first-rate soils, planting should begin at once with the young oaks from the nursery. In rocky places, however, very bare of soil, such as many of the hills about Colvend and other districts in Galloway, which are most suitable for coppes, it is certainly the best plan for proprietors to dibble their own acorns, doing it carefully. For among such rocks there is not sufficient soil to give at once the right continuance of nutriment to plants drawn from the rich beds of the nursery, and they languish accordingly. When the seedlings have grown three years or so, and appear sickly from want of soil, let them be cut over. The plant thus cut stoles out afresh, and with renewed vigour, sending out its shoots on all sides. Why are not all the rocky hills and braes in Galloway turned to proper account by being clothed with oak coppice?

The greatest care must be taken in planting, to have no inferior plants. No considerations of comparative cheapness should make proprietors, in their contracts with nurserymen, run any risk of this kind; nurserymen may engage to keep up the plantation for three or four years; but if their plants are inferior, only think how little all this keeping-up, as it is called, can atone for the loss of time in the successive plantings of one set of defective trees after another in a great breadth of young wood in a good soil, where every year should be telling on its continuous and unbroken growth. We could point out various instances of the ruinous policy of this sort of work. Let it suffice, however, that we have given the warning.—*Dumfries Herald*.

In the leading article of the Mark Lane Express, published on the 23rd of September in the last year, we offered some remarks upon the proceedings at the Meeting of the "Northamptonshire Farming and Grazing Society," and especially in reference to a prize of 50*l*. offered by Earl Spencer for a short-horn bull, for the use of the farmers within twenty miles of Northampton, at the low charge of 5*s*. for each cow." In

the course of these remarks, we observed, "Landowners, and persons possessing the necessary capital, who may be desirous of improving the breed of cattle of any description, could not effect that object in so easy a manner as by bringing good male animals into the district for the use of the farmers." We have now very great gratification in being enabled to announce an instance in which this course has been adopted, and we trust the announcement of it will induce others to follow the example. Landlords, generally, little know, or perhaps do not consider, how much they have it in their power to promote the interests of their tenantry, to benefit themselves, and to further improvements in agriculture, at a very small cost.

Earl Brownlow, being anxious to improve the breed of short-horns in the neighbourhood of Grantham, recently sent his agent, Mr. Watts, into the north, to purchase, regardless of expense, the three best pure bred bulls he could procure, for the use of his lordship's tenantry and friends around his mansion at Belton Park, where his lordship has a herd, specimens of which have been successfully shewn at the meetings of the Smithfield Club. Mr. Watts executed his mission successfully, and the animals have arrived.

We have always contended, that the landlords should be the first to hold out the means of improvement, whether in reference to the introduction of animals of superior breed, newly-invented implements, or new experiments. We trust the example of the noble Earl Brownlow will be speedily followed by many other landed proprietors.

THE QUEEN'S CHEESE.—The manufacture of the Queen's cheese, which has excited so much interest, is now going on quite to the satisfaction of the parties interested. Since we last saw it, this ponderous production has been removed from the place where it was made, and it is now in the care of Mr. Dunkerton, a respectable farmer of West Pennard, who has assigned a neatly-furnished parlour for its reception. The cheese required no less than sixteen men to convey it in safety to its present apartments, where upwards of 1,100 persons of every grade have been to see it, and have recorded their names in a book kept for the purpose. The great mass of luxury is protected by a wire gauze case, in a mahogany frame, surmounted by a handsome crown. The dimensions of this Leviathan of the Stilton, Cheshire, and Somersetshire creation, are three feet six inches in diameter, being about the span of a moderate-sized well, and nine feet four inches in circumference; and when presented to her Majesty, which important ceremony it is not expected will take place for the next 12 months, it is fully anticipated that it will weigh half a ton. It is now as sound as when first removed from the vat, and has perfectly retained its octagonal shape. We think that the respected individual in whose care the cheese is placed must now be tired of his charge, considering his numerous visitors, and the time it must occupy to answer their inquiries; but we presume he is quite compensated for the trouble he has taken by the conviction that his labours will at no distant day be the means of making many of the industrious poor of his neighbourhood rejoice, when the contents of the box he has for the reception of the free contributions of those who shall have called to admire the cheese are distributed amongst them. Then we think our friends will have reason to congratulate themselves on the success of their exertions. A song has been composed on the subject, and set to music!—*Bath Paper.*

NEW VARIETY OF GRAIN.

In almost all the numerous discoveries and improvements that are daily made in the arts and sciences, more or less interest is felt by those individuals only who are engaged in the pursuit, or who expect to derive advantage from them. But though the feeling is partial with regard to objects involving particular interest, yet when any improvement is effected in agriculture, by increasing the means of production, or a discovery is made of any grain or vegetable likely to add to our stores, or augment our comforts, all classes then, from the throne to the cottage, participate in the benefits resulting from it, and ought to be grateful and assist in extending its advantages. Amongst the greatest improvement of modern times the subsoil plough may be considered to take the lead; and we would strongly recommend the landlords of this country to read the different publications on this valuable instrument, and apply it to those soils where its advantages have been made so apparent in similar ones in Scotland, England, and parts of Ireland. But our object at present (and we think it will gratify our readers) is to direct their attention to a new variety of grain, of which a trial has been made this season in England, but of which sufficient quantity has not yet been raised to enable the true test of its future usefulness (field culture) to be applied to it. Last year a mechanic in Bedale, Yorkshire, received a letter from a relative in Peru, South America. In it were a few grains of what he called Peruvian barley, which, he stated, produced two crops from sowing in that country, that is, when one crop was reaped, shoots were proceeding from the stems, which the same brought to maturity. From curiosity more than any other motive at that time, these grains were planted in a garden, and those that vegetated produced a number of stems each, which came to maturity. This year, not having any place where the grain could be safely sown and taken care of, he was kindly permitted to occupy a bed 21 yards long and seven feet wide, in the garden of a lady of fortune in Bedale. Some more of the grain was grown in a little garden of his own, and the produce of one indifferent head was cultivated in the garden of the Rev. John Monson.

The corn grew luxuriant, and produced from some of the grains upwards of thirty stems: from its great height and luxuriance it suffered from the severe weather in July, but it was cut the 10th of August. There were some green stems growing from the root at the time, but not sufficient to justify the expectation of a second crop in this climate. The grain when standing has the appearance of barley, but much whiter, with a long beard or awn. On being pulled and rubbed in the hand the awn comes off with the husk, and leaves the grain bare like wheat, to which it bears then a stronger resemblance than to barley, and by some is considered a species of wheat. To show the enterprising and speculating spirit of Englishmen, 100*l.* was offered for the small produce of the small spot of ground above mentioned, on which the crop, notwithstanding the disadvantage of the season, was very great, but could not be more than 6 stone. We understand this sum was refused, the owner expecting to get more by selling it in small quantities. A specimen of the grain in the ear and straw may be seen by any person taking an interest in agricultural matters, at Sir Robert Bateson's, to whom it was given by the Rev. John Monson, who has saved at least three hundred ears from the one which he planted. It is but a just tribute to the gentleman

above named to notice the constant exertions he is making to benefit that much deserving class, the agricultural labourers. He has greatly diminished the extent of the land he himself occupied, by giving it to a number of them in allotments of one-fourth of an acre each. The quantity of land so appropriated is very considerable, and the crops on many of the allotments afford strong evidences of the benefits of spade husbandry. The rest of his farm, in his own hand, is entirely under spade culture, and the crops are without any comparison not only the finest but the earliest in the neighbourhood. Great are the benefits he has conferred on that neighbourhood by his kindness in this instance. He might make other districts participate in it, if he would make public the results, not only in stating the quantum and value of labour necessary to produce each crop, but the periods of sowing and harvesting, as compared with the common method, together with the comparative return of grain and roots, as raised by the spade and plough on soils of a similar nature.—*Derry Standard*.

SHEEP BREEDING.

(FOR THE CARLISLE PATRIOT.)

It will scarcely be necessary to inform "Practical" that any person will run the risk of being considered more than commonly bold that undertakes to establish a new theory, when that has to be done in the teeth of old established and deep-rooted opinions and prejudices, strengthened, at least, if not in some degree originating in our abhorrence of the fundamental principles upon which that theory is built. "In and in" breeding in the human species is looked upon with abhorrence, and this will very naturally strengthen the objection to it in inferior animals. It is true there are two periods in the history of the world when "in and in" breeding must have been practised, but that was a matter of necessity, and as far as the human species were concerned, their repugnance to it might in their case, at those times alluded to, be counteracted and, in all its ill effects, be prevented by an all-wise and overruling power; but however bold such an attempt may be considered, I cannot be blind to my own temerity in venturing to oppose the opinions of so talented a writer as "Practical," who can wield the pen with so much dexterity.

With respect to "sturdy" or "giddy," I have seldom heard it attributed to "in and in" breeding, and I certainly do not think it originates in that cause, nor do I think there is the slightest analogy between sturdy in sheep and insanity in man. Although this disease produces such a serious effect upon the animal, yet we have no reason to think that its mind (if I may be allowed to make use of the term as applied to a sheep) is at all affected; nor does "Practical" shew very clearly that this disease is owing to a contracted or ill-shaped skull; "Although the veriest butcher's boy in cleaving down the head of a giddy sheep, comes to an incised watery tumour which may be handled and extracted without bursting;" we are not informed that it is invariably found in small contracted ill-shaped heads, or that it was never met with in a large capacious—or, in short, what "Practical" seems to look upon as the beau ideal of a sheep's head. Being strongly opposed to "in and in" breeding, I have avoided it as much as

possible, and I have no distinct recollection of having a sheep affected with "sturdy," nor one that died of rot. Whatever may be the proximate cause of sturdy, I am not going to contend that "in and in" breeding is the immediate cause of the rot, and I have already said that I do not consider it the cause of sturdy, though it may in some cases be the remote cause of both, by inducing a predisposition to disease from a delicate constitution, the consequence of "in and in" breeding. If the general opinion be correct, that from "in and in" breeding being frequently repeated, the flock becomes small in bone, diminutive in size, bare in the wool, and shews altogether strong symptoms of degeneracy, it is also very probable that a feeble constitution and a predisposition to disease will be their concomitants. Not having practised "in and in" breeding myself, I cannot, of course, speak from my own experience; but I must confess that nothing that I have met with in "Practical's" letters on the subject has been sufficient to remove from my mind the prejudice—if it must be called so—against "in and in" breeding. Mr. Marshall's account of Mr. Bakewell's Bull D will hardly be sufficient to convince any one of the general advantages to be derived from the system; though the account of its being "more active and higher mettled at the age of twelve or thirteen months than bulls generally are at three or four years old," must be admitted to be at least amusing. I think that before "Practical" can establish his theory upon any thing like a solid foundation he must support it by the test of an experience much more extensive than any he has as yet adduced in its support. When by a proper and judicious crossing you get a flock generally possessed of the points requisite and desirable, and continue to do so through a long succession of years, it is not unreasonable to assume that you have adopted and pursued something like a right course, and will be more confirmed in that opinion when you are surrounded by others who, by pursuing the same system, have arrived at the same results. When "Practical's" theory has been tested by the experience of years, and in a great number of cases; when there are such a number of instances where parties have bred from the same flock, without any regard to the degree of relationship between the male and female, that it may be said to be general, and have succeeded in acquiring the qualities most desirable in sheep, and continue to retain or rather improve those qualities through successive years, and in all cases, then he may hope to upset the prejudice of those opposed to "in and in" breeding.

"Practical's" letter, No. 7, induces me to ask a question that ought to be understood at starting, viz., what is "in and in" breeding? He says, "Now, if by the judicious admixture of different flocks, you mean different breeds, you must be wrong, for that evidently would obliterate that peculiar breed, the new Leicester's; and if you mean different flocks of the same breed; that I submit is 'in and in' breeding." It is very easy to find different flocks of the same breed, the Leicester for instance, between which there is no near relationship, and certainly not that propinquity that I conceive to be necessary to constitute "in and in" breeding. All these different flocks may have been derived from the same original stock, but they must be long, ere this, out of the pale of "in and in" relationship. If I am wrong in this—if the words I have quoted are meant to bear the interpretation that their plain meaning seems to

convey, then "Practical" himself, he being an Englishman, and his wife (I hope he is possessed of heaven's best gift, a wife) an Englishwoman, is proving the soundness of his theory in his own case, and even Miss Lucretia M'Tab, the most modest and decorous of her sex, would scarcely stand acquitted of setting an example to encourage "in and in" breeding by marrying her fourteenth cousin, the tobacconist in Glasgow.

In his first letter "Practical" says, "First, show me that over much couining does really lead to fatuity of mind which has not yet been done." It may be very difficult to prove to the satisfaction of "Practical" by any instance that could be given that fatuity of mind was the result of "over much couining," but instances are numerous in which it has been attributed to that cause. I know one where the parties were as nearly related as they well could be, not to be brother and sister; they had several children who were completely imbecile in mind; and most likely "Practical" himself, if so minded, could, within his own acquaintance, find numerous instances confirmatory of such general belief. I shall not pursue the subject farther, but will leave "Practical" to trace these consequences to what cause he pleases.

I am, with great deference,
Aug. 15. A CUMBERLAND SHEEP BREEDER.

OBSERVATIONS, WITH THE RESULT OF SOME EXPERIMENTS

RELATIVE TO SMUT BLADDERS, OR PEP-
PER BRAND IN WHEAT.

ADDRESSED BY HENRY CLUTTEN TO AGRICULTURISTS.

GENTLEMEN,—With the hope of engaging the genius of some more competent person to a thorough investigation of the matter, I beg leave to submit to your notice the following remarks and experiments upon the above subject.

In regard to the physiological character of the disease I have but little to say. To attempt the refutation of any of the theories laid down by men of science requires greater powers of research than perhaps I have at my command; I cannot but regret, nevertheless, that the information afforded in any of their works which I have seen, should be of such a meagre cast; for I am compelled to avail myself of their assistance, and have consequently in the prosecution of my enquiries adopted the views entertained by the celebrated vegetable physiologist, De Candolle.

De Candolle first tells us that brand, or burnt ear, (more commonly met with in barley) is a distinct disease from bladders, but that both originate and are propagated in the same manner; and he calls them both species of Parasitical Funguses or Mushrooms, so minute as to be seen only by the magnifying powers of the microscope, and they vegetate and draw their sustenance from the nutritious matter of the kernels of the plant on which they are found. Mildew or rust bears some analogy to smut in its parasitical character of subsisting on the juices of other plants. The Fungus seen to grow on some trees is likewise a kind of parasite, as is also the Mistletoe; and both afford instances of one plant growing out of and feeding upon the juice of others. De Candolle goes on to state that the black powder, both in brand and smut, contains extremely small seeds or germs, which in thrashing, &c., adheres to

the seed corn, and are deposited in the earth with it; from thence, in consequence of their inconceivable smallness, they are conveyed by means of the spongioles of the root of the wheat plant, along with the fluid food supplied by the soil, into the circulating sap of the plant. He further says, he has noticed such plants as have imbibed these diseased germs, exhibit a difference in colour from healthy ones, and that when their ears shoot forth these germs commence vegetating in the ears, producing smut or brand according to its kind. In burnt ear the black powder, as every farmer is aware, is void of smell, and is not enclosed in bladders, but vegetates exposed externally; I need not say such is not the case with smut, which stinks, and comes to maturity enclosed in imperfectly formed kernels or bladders. In both cases it is found that the disease consumes all the matter which would otherwise have gone towards the formation of the grains of corn. Such is in substance the theory of De Candolle. How does it accord with the farmers' experience? If we look to the varied opinions held by them concerning different supposed remedies, their corroborative evidence is certainly very inconclusive: but what I am about to show is how such inconsistencies may exist in their reports, and why, supposing De Candolle's explanation to be correct, some persons fail whilst others apparently succeed in preventing the disease, although both profess to employ the same means. First, I will refer to the process of wetting with salt water. There appear to be four circumstances which may hinder the uniform effect of this mode of dressing. The first relates to the quantity of salt employed in proportion to the water, and the second to the time allowed for it to dissolve; inattention to these two remarks would produce a liquid of different strength at different times, and probably different results would be the consequence. The third refers to the time permitted to intervene between the wetting and the admixture of the lime, for if sufficient time be not allowed for the salt preparation to act before the lime be applied, the lime will of course absorb the moisture, and stay all further effect. The fourth relates to its secondary effect with the lime, as I shall explain by and by.

My second observations are directed to the liming of wheat. It is well known that there is a sensible difference between quick-lime and chalk, but perhaps every farmer is not aware that exposing quick-lime to the action of the atmosphere reduces it to its original state, and actually reconverts it into chalk. Quick-lime is caustic or corrosive in a high degree, (and who knows it is not on this property that its utility depends?) Chalk is perfectly inert, and destitute of such qualities; I am sure everybody must have noticed this difference, yet who is it that ever thinks of seeing or enquiring whether the lime which he buys be fresh burnt? or whoever dreams of excluding it from the action of the air after he has bought it, until it is required for use? The second source of error in the employment of lime may arise from not sufficiently wetting the wheat; lime, it should be understood, exhibits none of its caustic qualities without the aid of moisture, consequently if you have no moisture you have no action with the lime, and the amount of effect will, to a certain extent, bear a proportion to the quantity of fluid used; and I wish it to be particularly noticed that this fact applies also to the secondary effect of salt water already alluded to, as well as to the remarks which I have to make in regard to the practice of dressing with urine, and other liquids employed with lime. I have one more observation to make respecting lime, which is, that it is partially soluble in water; chalk

or lime long exposed to the air, is not ; if therefore any good depends on this dissolved portion, here is another reason for employing lime fresh from the kiln. Bauer, who has examined this subject, says lime-water is a remedy for smut.

It does not occur to me that there are any very important circumstances which can materially affect the operation of urine, beyond that of relative quantity already referred to ; due regard should however be had to its age, as it undergoes decomposition by keeping and exposure, as may be known by the strong ammoniacal smell which putrifying urine acquires. Fresh and stale urine may therefore be productive of different results.

I now come to consider the using of arsenic as a dressing. The proportions employed vary from $\frac{1}{2}$ lb. to $\frac{3}{4}$ lb. per coomb, but more frequently a $\frac{1}{2}$ lb. only ; this by some is simply stirred in dry with the seed wheat, a mode of procedure which seems to me perfectly futile, since not only are the chances ten to one whether every kernel gets a particle of arsenic upon them, but it must be the merest accident if that particle falls upon the precise spot where we may suppose a smutty seed to adhere ; or even if it should do so, I question whether it would exert sufficient power in its dry state to destroy it—for arsenic, like many other substances, requires moisture to liberate its caustic, if not its virulent properties. Other persons will mix the arsenic in a watering-pot full of cold water, a plan which is decidedly preferable as every kernel thus stands a chance of getting wetted all over with the liquid so poisoned, but as it requires 100 pints of cold water to dissolve only about 5oz. of arsenic, it is questionable whether it is sufficiently strong. The same quantity of hot water will dissolve about 120oz., therefore should it be found desirable it may be made of any intermediate strength between these two extremes. Granting, however, that the cold water plan is sufficiently potent, time must be given for the arsenic to dissolve, for if it be poured from the pot as soon as the arsenic is stirred in, the wheat will absorb the moisture from it before it has become impregnated with the poison. The third way in which arsenic may fail, is the most important of all ; and variability of time between the beginning and ending of the process is the cause of this also. Sometimes the arsenical liquid spoken of in the last method is permitted to remain upon the wheat a considerable time before it is sowed ; on another occasion perhaps the liming operation is proceeded with immediately ; now it should be known that instantly the lime is applied all further action is at an end, lime being the very article employed as an antidote for arsenic ; the moment it comes in contact with a liquid containing that poisonous substance it converts it into an insoluble, inert, arsenate of lime ; indeed, if it exerted no chemical effect whatever, it must necessarily stay its action, by absorbing the moisture which is essential to its efficacy.*

I will now proceed to show that lime is equally important in the process with blue vitriol, or sulphate of copper, and for similar reasons. Lime has the property of decomposing blue vitriol, and of forming an insoluble and consequently ineffective cupreous sulphate of lime, leaving the liquid void of any impregnation whatever.†

What is called the swimming and skimming process is doubtless very useful for removing whole bladders, as well as much of the powder, but I think it ought not to be entirely relied on, as much of the latter would still adhere in defiance of dipping.

Taking the ground that some or all of these things have the power of effecting the desired purpose, you see, gentlemen, how easy a thing it is to mar their effects altogether, or at least to give rise to uncertainty of result, by some slight omission or alteration in the process ; time, relative quantity, quality, and chemical decomposition, may each exert their influence in rendering your operations nugatory ; and doubtless there are other sources of error which have not occurred to my notice. Some of these details may seem scarcely worthy notice, and insufficient to account for the variability attending similar processes, but be assured if there is any truth in De Candolle's theory, it is important to be particular in the most trivial circumstances, or all efforts are vain ; but if his views are not entirely satisfactory, if your experience throws a doubt on his assertions, permit me to say, it is you agriculturists who have the opportunity and the means of clearing up the hidden mystery, and of ascertaining what is the proper and sufficient remedy ; but it is my humble opinion that you have not hitherto gone the right way to work ; such experiments require much patience, much attention, strict observation, and above all invariableness ; a fixed and determinate method ; be the process whichever it may, the minutest circumstance overlooked or neglected may defeat the object in view. This is never sufficiently regarded by persons unaccustomed to experimentizing, and by those who do not study cause and effect. It may be no trial of its utility to dress a whole crop of wheat by any particular process, and because when harvested it yields no smut, to argue from thence that the operation prevented it ; because it is possible no smut was sown. Neither perhaps would it be right to infer that any particular dressing was a failure, because you have here and there a bladder, for not only might the process be improperly performed, but there might be whole bladders in the seed corn which protected the powder contained within them from the action of the dressing, by means of their skins. Such might go to the ground in their entire state, or get broken in the drill. We are not quite sure either, that bladders are not capable of laying dormant for a considerable time in the earth, as other seeds are known to do ; nor that wheat from a smutty plant does not occasionally produce smutty corn. Indeed, gentlemen, there are many things to be taken into account in the examination of this subject, and it strikes me you will never arrive at the truth but by a course of systematic experiments instituted for the express purpose ; if I may be allowed to dictate, I would suggest that a quantity of sound wheat should be slightly moistened and well rubbed over with the powder from bladders till every kernel is thoroughly imbued with it, and that a portion of it thus prepared should be planted by itself. The remainder of the wheat so covered with smut I would divide into several parcels, and dress each parcel with a different dressing, taking a particular written notice of the exact manner each was treated, and likewise using care to keep a distinct account of the situation each is planted in. You would thus ascertain whether smut causes smut, and whether any of the things employed prevented it, and which was the best. A quantity of kernels from a bladdered plant (not the bladders themselves) should be sown separately, to

* If a mixture of fresh lime with water be added to a solution of arsenic, and filtered, and the filtered liquid be subjected to the usual tests, the absence of arsenic will be proved.

† I think this would be proved by proceeding the same as with arsenic, and afterwards testing it with ammonia.

see if they ever or constantly produce smutty ears. Whole bladders should be buried in well observed spots, and the precise spot be searched for a twelve-month or more afterwards, that sound wheat may be deposited in the exact place where the bladders were known to have lain; with the view of seeing whether the germ of the disease is capable of laying dormant for long and definite lapses of time, and then again springing forth into life. I would likewise recommend in reference to the process with arsenic, that the arsenic be boiled, or at least dissolved in hot water, as a liquid may be thus formed of any required strength, and which provided it were allowed to remain upon the wheat the same space of time would always act with uniformity, liquids being more readily diffused through a mass of corn than solids. Experiments would of course be required to determine what strength could be used without detriment to the future plant, whilst at the same time it insured the destruction of the vegetative principle of the bladder. From some trials which I have made, corn is capable of withstanding much stronger applications than is commonly supposed, but not having turned my attention to the subject till within these last few days, I had not time to make any decisive experiments; nevertheless, so far as they have gone, they exhibit some facts which may be worth notice. In all the trials, the seeds which I used, both of mustard and wheat, were put into the preparation during the processes, and remained therein for *twenty-four hours* afterwards; in the *first ten* experiments they were taken out of the ground, after remaining in it *four days*, and those which follow after, *three days*.

The 1st trial was with mustard seeds, in a boiled solution of arsenic, about forty times the strength of the arsenic liquid made with cold water.—The seeds had begun to decay.

2nd. Was the same mixture diluted to half the strength.—In this case the mustard seeds had begun to germinate.

3rd. With sound wheat in the first-mentioned liquid of the fortieth power.—They were swollen and appeared healthy.

4th. Wheat in half the strength.—Began to shoot.

5th. Mustard seeds in water impregnated with blue vitriol whilst cold, to saturation.—Found decayed.

6th. Wheat treated the same.—Healthy and commencing germination.

7th. Wheat in the same, diluted to half the strength.—In the same state of vegetation.

8th. Mustard seeds in quick lime, using such a quantity of water as left the lime still in a dry state.—They shewed some appearance of shooting.

9th. Mustard seeds in fresh urine and lime, in a liquid state.—Found decayed.

10th. Wheat in a saturated solution of salt (made with cold water).—Was found in a state approaching decay.

It will be seen, therefore, that the 1st, 5th, and 9th processes destroyed the vital principle of the mustard seeds, but not of the wheat. This shews that the vitality of exceedingly small seeds, may be obliterated without perishing those of larger size. The mustard seed died in the first experiment and lived in the second, although still twenty times the strength commonly used; the second, therefore, offers a proof of the strong mixture which is required to extinguish life, even in so small a seed as that of mustard; whilst the first shews us that the same preparation, when stronger, is capable of doing so.

Wheat, as we have seen, survived the strong arsenic and vitriol liquids, but perished in the salt. This I did not expect; if it should turn out an invariable consequence, it teaches us to be careful in the use of salt. The destruction of the mustard seeds occasioned by the lime and urine, at least set forth its powerful effects. It was not tried with wheat. The mustard seeds having survived a similar process in which water was substituted for urine, we might, at first sight, suppose the deadly effect was attributable entirely to the urine; but as in the water process the lime was still in a dry state, I have no doubt but the different result is referable to that cause. I had a mind to try the effect of hot water upon the vitality of seeds; thinking, perhaps, that might be found effectual for the purpose of destroying the disease. Boiling hot water was poured upon wheat in separate pots, and permitted to remain upon it, in the 1st case, half a minute; in the 2nd, one minute; in the 3rd, one and a half minute; in the 4th, two minutes; instead of extinguishing the vegetative principle, I found, after being planted only three days, that it had wonderfully accelerated the germination. The 1st had shot half an inch, the two next more, and the 4th full an inch; whilst mustard seeds treated the same, in no case shewed any sign of life; now as it destroyed the smaller seed, it is fair to conclude that water, perhaps not quite so hot, would be effective for smut. It is doubtful whether plants thus unnaturally forced, would continue healthy; if they would, such an operation might in some cases be useful. I have just been assured by a gentleman, that old wheat will not grow smut, even if not dressed; if this be true it may perhaps be accounted for from the dryness of old wheat not allowing the cause of the disease to adhere, or the seeds giving rise to the disease, or belong to a class which will not vegetate if kept beyond a year; at all events, if the fact can be substantiated, the cure for bladders is obvious, —never to plant new seed.

Gentlemen, I attach very little importance to my experiments with the seeds, as the time was too limited; but if in the course of my remarks, I have hinted anything which may lead to the successful treatment of wheat, for the certain destruction of bladders, I shall be more than rewarded for the little trouble it has cost me. I am, gentlemen, your obedient servant,

HENRY CLUTTEN.

Framlingham, Sept. 12, 1840.

ON THE HOOSE IN CALVES.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Having been for some years a subscriber to your valuable Magazine, I shall feel much obliged by any of your professional correspondents having the kindness to inform me, through the medium of your publication, what is the best remedy for a disease called the hoose, which is just now very prevalent among calves in this neighbourhood.

In Vol. I., p. 30, of your new series, Mr. Mayer, of Newcastle, recommends lime water, alternated with a solution of salt water, but he does not state how often or in what quantities they are to be administered.—I remain, sir, your most obedient servant,

D. J. L.

August 26.

NITRATE OF SODA.

SIR,—I have tried a small quantity of nitrate of soda on a piece of pasture land, the good effect on which induces me to think of using a quantity; but several of your correspondents state, that *it is very exhausting to the soil*. I do not understand what they mean by this assertion: do they mean that land manured this year with nitre, although it may cause an increased crop this year, next year it will be worse than it was before any nitre was applied? if this be the fact, then I should say the soil is exhausted by its application, but if the crop be increased this year, and the ground no worse next year than it was before the nitre was applied, it cannot be said that the soil is exhausted by it. Land may be exhausted by repeated cropping and not manuring, but in the case of nitre if it causes such a vigorous growth for one crop it must be a good manure, and the same land the following year will be in better condition than it was before the nitre was applied. If this should prove not to be the case, I should conclude that nitre is injurious: the subsequent weakness of the herbage would seem to prove that though it assisted the crop on its first application, its effect on the soil, perhaps from some chemical combination, injures the fruitful powers of the soil which forms the food of plants.

Nitrate of soda dissolves in a day or two after being applied, consequently it enters into the composition of the plant immediately. I can easily imagine the crop taking up the strength of the nitre in one season, and that no particular benefit would be observable another season. Bones and dung are much longer in decomposing, and entering into the composition of plants, consequently their effects will be seen two or more years after.

I should like to know if nitrate of soda has any injurious effect on the soil, by destroying any of its vegetative powers by repeated application; if it does not destroy or in any way injure the powers of the soil, then, though no benefit may be seen a second year, yet a second application would produce as good a crop as the first.

Would it answer to sow nitrate of soda on the same land three or four years together?

What are its constituent parts, has it any thing of an oily nature in it, such as forms so important a part in natural dung?

It is a salt, but if the salt be the only portion which serves as the food of plants, then it would appear that repeated applications to the same soil would be injurious, the land would become too much impregnated with it, overpower or destroy the other properties of the land, and thereby exhaust it and render the same unfruitful.

I shall feel obliged by an early reply from some of your intelligent correspondents.

Yours respectfully,

Cheshire, Aug. 26th.

O. D.

When our attention was first directed to "the Benevolent Society for the relief of the widows and orphans of farmers," about to be formed by "the Midford and Launditch Association," in Norfolk, we were induced to make some remarks upon it, not altogether favourable, from the understanding that it was intended as a means of investment by the *parties interested*, with a view to future benefit to their families. Acting upon this

belief, we did not hesitate to recommend the "Farmer's Fire and Life Insurance Institution," as affording greater and more solid advantages than the proposed Society; we have, however, since been given to understand, by a gentleman who takes great interest in the society, that its objects are purely *benevolent*, and intended to afford *charitable relief*. As a charitable institution, therefore, as a means of affording comfort to the families of those farmers whose circumstances have been such as to leave their families in need of assistance, we heartily wish it success. We would, however, observe that the promoters of this society, whilst from feelings of the best kind, they seek to provide relief for those who, from inevitable circumstances are plunged into distress, would do well to inculcate the propriety of greater exertion on the part of the smaller farmers generally, to provide for the future. In "The Farmers' Fire and Life Insurance Institution," a man twenty-six years of age may, by the payment of £1. per annum, insure £50. to his family at his death, however soon it may happen. For two shillings a week, commencing at the age of twenty, he may secure an annuity of £20. per annum, to commence as soon as he shall reach fifty years of age, to continue for the remainder of his life; and in the event of his dying before he attains that age, or in case of inability to continue his payments, he may receive *the whole of the money back*.

ON FEEDING SHEEP WITH CORN.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Having understood that young wethers when feeding on turnips will improve much faster by having some corn, or cake given at the same time, I hope some of your intelligent correspondents will be kind enough to inform me through the medium of your useful paper, whether the corn should be given whole or crushed; and what description of corn suits them best; also, if beans have been found to answer as well in the fattening of sheep as they have with bullocks: not being in a neighbourhood convenient for procuring oilcake, whether linseed is ever used for this purpose; and if so, should it be given in its crude state, &c.?

By inserting this you will greatly oblige,

A Novice.

FEEDING SHEEP.

TO THE EDITORS OF THE LEEDS MERCURY.

GENTLEMEN,—I find in Earl Spencer's address made before a meeting of the Agricultural Society, at Leeds, the following statement:—"That sheep feed much faster in sheds on account of the *rest* they obtain by having turnips carted to them." I believe sheds to be an excellent improvement, as it will protect them from the inclemency of the weather, and it is on that account it will cause them to feed faster, and not as stated by Earl Spencer as above, as cold wet weather is injurious to sheep or any other cattle.

Should this meet with your approbation, you will greatly oblige me by inserting it in your valuable paper for the benefit of the Agricultural Society. I should have noticed it sooner but in consequence of other engagements, was prevented.

I am, your's truly,

AN AGRICULTURIST.

Craven, Aug. 25th, 1840.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At a monthly Council held on Wednesday, Sept. 2, present, David Barclay, Esq., in the chair; Thomas Raymond Barker, Esq.; French Burke, Esq.; Edward Greadhead, Esq.; Rev. W. L. Rham; William Shaw, Esq.; William Youatt, Esq.; the report of the Finance Committee was received and adopted.

Mr. Legard presented, on the part of himself and the other judges, a report on implements exhibited at the Cambridge Meeting.

Lord Worsley and Mr. Horwood each transmitted information on the progress and treatment of the epidemic among cattle; the former communication (from Lincolnshire) stating that by administering Epsom salts with nitre, and avoiding bleeding, none of the numerous cases had terminated fatally; the latter (from Northamptonshire) pointing out the predilection evinced by the cattle on recovery for the young shoots of the elder tree, and thence inferring the probability of this plant being a natural restorative for the cattle.

Mr. Baker Gabb addressed a letter from South Wales on the advantages to be derived from encouraging the breed of cattle possessing dairy as well as fattening qualities; Mr. Baines a communication from Lancashire on the importance of chemical enquiries into the nature and properties of milk; and Mr. Chawner, Secretary of the Lichfield Agricultural Society, suggesting the practical advantages to be derived from having crops in the neighbourhood of Liverpool, at the time of meeting next year, exhibiting the comparative merits of the Drills and Dibbling Machines employed in sowing for them.

Col. Le Conteur addressed a letter to the Council on the subject of the great meeting of the Highland Society to be held at Aberdeen on the 8th of October, and to continue three days.

Mr. Rham exhibited some beautiful specimens of wheat, and Mr. Norris, of Rodwell House, Baldock, transmitted specimens for the museum. Mr. Youatt presented a copy of Mr. Spooner's new work on the foot and leg of the horse; Mr. Shaw the new number of the "Farmers' Magazine;" the Highland Society the last part of the "Quarterly Journal of Agriculture;" the Labourers' Friend Society, the last number of their proceedings; the Statistical Society, their Transactions for July; the editor of the American "Cultivator," several numbers of that Agricultural Paper; and the Royal Society of Agriculture of Lyons, a set of their "Annales des Sciences Physiques et Naturelles."

Mr. Wetherell, of Durham, communicated his suggestions respecting the mode of conducting the sale of stock at the Liverpool Meeting. The following gentlemen were elected members of the Society.

Henry Spirling, Norbury Park, Leatherhead
Isaiah Deck, Cambridge
Mark Fothergill, 40, Upper Thames Street
T. Waring, Cherfield, Kent
John Abbey, Market Harborough
Edward Abbey, Creaton, Northamptonshire
Alexander Bell, Corn Exchange
G. Wood, Denver, Norfolk
J. Brown, Lea Castle, Worcestershire
T. Rodwell, Chaseley, Norfolk
T. S. Sperring, Wanstead, Essex
Rev. C. C. B. Bownall, Milton Earnest, Bedford
R. J. G. Thring, Alford House, Castle Carey
S. Mills, Elston, Devises
E. Steward, Boughton
E. L. Bewsher, Littlebury, Saffron Walden
Rev. C. Penrice, Plumstead
J. S. Bell, Galstone
Sir J. Palmer, Baronet, Carleton, Northamptonshire
P. Love, Mesley
T. Sowdon, Woolhope, Herts
John Tyler, Layton, Essex
T. Knight, Edmonton
R. Leeds, Addiscombe
T. S. Thompson, Clements

Z. Piggott, Southfield, Kent
J. Edmeads, Hazells, Northfleet
Brown, Collison, New England, Hitchin, Herts
Rev. G. R. Downard, Whitechurch, Shropshire
Henry Cook, Willesbury, Ashford, Kent
John Merton, Cooling Castle, Rochester
H. C. Woodcock, Rotherby Hall, Leicestershire
Henry Gibbons, Wolverhampton, Staffordshire
John Hall, Sandbeach
R. Knight, Dunton House, Brentwood
H. Wright, Cawthorpe Bours, Lincolnshire
H. Haynes, Whittlesea, Cambridgeshire
John Child, Merton Mill, Surrey
Robt. Hawes, Colterhall, Norfolk
Joseph Holley, Burgh, Norfolk
Carter, Claydon, Barham Linton
P. Bennet, jun., Rougham Hall, Bury St. Edmund's
Timothy Hutton, Clifton, Yorkshire
C. C. Petley, Sevenoaks, Kent
C. Wood, Siddington, Gloucestershire
R. Perry, Debden, Essex
John Peed, Whittlesea, Isle of Ely
Geo. Questin, Ash Wingham
J. J. Slater, Haselbeach
P. Sherrard, Glatten
H. S. Northgate, Pynes
J. S. Surridge, Kelvin
W. Hitchman, Chipping Norton
James Meyer, Forty Hall, Enfield
Thomas Nutter, Cambridge
John Little, Eldernell
W. Hopkins, Peterhouse, Cambridge
E. Palmer, Caston
D. White, jun., Dudwick
Joseph Allison, Bilby Retford
Rev. H. Cane, Southwell, Notts
Robert Smith, Alcaster, Malbis, Yorkshire
J. G. Dixon, Caistor, Lincolnshire
Professor Henslow, Hitcham, Bideston, Suffolk
T. Kennington, Stinton Vale, Binsbrook
W. Day, Thornway Vale, Caistor
W. Hunt, Stamford
E. Clark, Camwick, Lincolnshire
J. Gilstrap, Hawton, Newark
J. S. Bradfield, Stoke Ferry, Norfolk
Thomas Lowrey, Syston, Grantham
John Downing, Casthorp, Grantham
T. Nicholson, Grayingham, Kirton-in-Linsey
J. Booth, Kirton-in-Linsey, Lincolnshire
Thomas Winns, Lincoln
T. M. Kegworth, Lincoln
Henry Frost, West Wratling, Cambridgeshire
W. Sanday, Holme Pirrepoint, Notts
S. Slanton, Leamington, near Wisbech
James Hannell, Lynn Regis, Norfolk
Samuel Goodwin, Huntingfield, Suffolk
Russell Sewell, Little Oakly Hall, Harwich
Alexander Gilbert, Cantley, Norfolk
W. Johnson, Chesterton, Cambridgeshire
Rev. T. Sullivan, Welling, Hertfordshire
W. Heath, Norwich
John R. Carter, Westleton, Yoxford
A. F. Campbell, Great Plumstead, Norwich
George Hutton, Hattfield, Suffolk
T. Parkinson, Ley Fields, Ollerton, Notts
T. S. Woolley, South Cottingham
C. Mostyn, West Rasen, Lincolnshire
D. Ellis, Creshall Grange, Essex
T. W. Bosworth, Spraton, Northampton
Rev. F. Le Grier, Great Gransden, Hunts
John Raynsfield, Henlow Grange, Biggleswade
S. Francis, Ford-place, Stifford, Essex
F. Carter, Goverley, Warwickshire
J. B. Brown, Colne Engain, Essex
John Stracy, Spowston Lodge, Norwich
John Utting, Stanning Hall, Norfolk
Rev. T. Price, King's College, Oxford
R. Tinklin, Bolton, Westmoreland
J. Twist, Norwich
J. Churchyard, Pettistree, Suffolk
R. Peakes, Stag's Hall March, Isle of Ely

John Derry, Writtle, Essex
 John Carter, Pinchbeck
 John Beddall, Brent House, Finchinfield
 C. Beddall, Brent House, Finchinfield
 H. Beddall, Finchinfield
 P. S. F. Martin, Halstead, Essex
 John Stedman, Goldhanger, Maldon, Essex
 T. C. Rolfe, White Notley, Braintree
 M. Savill, Colchester, Essex
 T. Pollett, Great Banfield, Essex
 Rev. T. L. Clarkson, Bayton, Suffolk
 T. W. Read, Trowse Mills, Norwich
 Rev. W. Mayd, Wethersfield, Haverhill
 H. Grimmer, Haddiscoe, Norfolk
 C. Frewen, Brickwall House, Netherlhim
 V. Pryor, Baldock, Herts
 Edward Tattersall, Clare, Suffolk
 Rev. W. Whewell, Trinity College, Cambridge
 E. F. Fiske, Cambridge
 James Dalton, Bury, Suffolk
 George King, Suffron Walden, Essex
 R. N. Cartwright, Ireworth Abbey, Suffolk
 Joseph Bayzand, Ringley, near Alcester
 Tobias Atkinson, Kendal
 William Turner, Lyth, Kendal
 John Watson, Bolton Park, Wigton, Cumberland
 T. J. Naah, Bishop's Stortford, Herts
 J. M. R. Fawcett, Cambridge
 W. F. Riley, Forest Hill, Windsor
 John Betts, King's Langley, Herts
 J. S. C. M'Dewall, Water End, Saadridge, St. Alban's
 J. Sewell, Chatteris, Cambridgeshire
 R. v. E. Meredith, Newport, Salop
 W. H. Belton, Llangdon, Wellington, Salop
 The Rev. H. Hickinn, Walton-on-Thames, Surrey
 Thomas Bowker, Whittlesea, Cambridgeshire
 Edward Barnard, Coldham Hall, Wisbeach
 R. Prake, Stagsholt Farm, Wisbeach
 Viscount Ashley, M.P., Upper Brook-street
 Wilham Warner, Botley, Hampshire
 Joseph Hodgson, Holme Hall, Bakewell, Derbyshire
 Rev. W. Carns, Trinity College, Cambridge
 John Perry, Abridge, Essex
 Sir C. Wale, Shelford
 W. Warren, Cambridge
 Hon. T. T. Rouse, Stanhope-street
 Robert Raper
 General Grosvenor, Hare Park
 W. Wrightup, Pintry
 C. Spaham, Blakeney
 T. Beddall, jun., Justices Finchinfield
 J. C. M. Cobbold, Ipswich
 R. Dix, Stroston Hall, near Walton
 John Dixon, Waddington Heath, Lincoln
 T. Grove, Baddon, Essex
 T. C. Peake, Sidney College, Camb.
 J. Gosling, Bocking, Essex
 J. Fountain, Eaton Lodge, Norfolk
 T. Paxton, Potsgrove, Woburn, Beds.
 T. Carr, Wheeting, Norfolk
 W. Crowe, Gonelhouse, Cambridge
 J. Halleth, Mortloch, Somersetshire
 John Stowe, Oxford
 J. H. Largeat, Wickham Market
 J. Gordy, Wickham Market
 Rev. W. Lucas, Burgh Acle
 John Goldsmith, Ixworth, Suffolk
 W. Goldsmith, 31. Parliament-street, Westminster
 T. Poole, North Wold, Norfolk
 J. Bridgewarde, Sudbury, Suffolk
 F. France, St. John's Coll., Camb.
 Rev. L. R. Brown, Keadle
 R. Sayer, Sebtan Park, Suffolk
 J. Stracey, Sprowston, Norwich
 Capt. Stracey, 31, Wimpole-street, London
 T. J. Spittinings, Tydd St. Mary, Lincolnshire
 James Shirping, Tydd Marsh, Cambridgeshire
 C. H. Bainbridge, Lunly Park, Durham
 T. Rawthorne, Heysham Hall, Lancaster
 H. C. Wentworth, Harlow

The Council then adjourned to the 7th of October.

ON THE MANAGEMENT OF CLAY LANDS.

SIR,—The essays of your correspondent "J. D." are truly excellent and practical; that on rotations, which appeared in yours of the 31st ult., is admirable, and is a complete refutation of the fashionable, but absurd doctrine of dispensing with bare fallows on stiff clay soils. To any one who has been in the habit of cultivating clay soils, it must be evident that the crop of Wheat after a bare fallow is *always* more profitable than a Turnip crop (which is always inferior on such soils), and the succeeding Barley or Oat crop; the whole expense of growing the Turnip crop is saved by substituting bare fallow; the soil is saved by not carting on it in wet weather in getting off the Turnips; the immense labour of men and horses in spring in obtaining a mould for Spring Corn and grass seeds is avoided; and, after all, more value is got from the soil; who then will hesitate between the two systems? The great desideratum is the means of converting the straw into manure on this stubborn clay, without the aid of turnips; Oilcake has been used in some instances, but it is too expensive, and is not, besides, a substitute for the succulent, juicy, manure-making Turnip. Cannot your talented correspondent "J. D." help the poor clay land farmer to a remedy? I must also appeal to him as to the effect of ploughing in Beans, Tares, &c. &c. in fallows on strong soils: the clay farmer cannot have recourse to bones; rape dust answers well, but it is exceedingly expensive, dressing an acre with it would nearly amount to the value of the succeeding Wheat crop on inferior soil. If ploughing in green crops were found to answer as a manuring, it would be an immense gain to that unfortunate man, the occupier of a poor clay-land farm, as there would be but little labour, and the whole cost would be the price of the seed. I am aware that some will say "Tile-drain your land, and then grow turnips;" but this, Mr. Editor, you will allow is not always practicable, tenants of such soils are not overburdened with cash, and sometimes landlords are neither able nor willing to lay out 10*l.* per acre in draining their farms; I am certain your correspondent "J. D." is well aware of this fact, and that that is not the way he will answer the appeal of the poor clay farmer. I hope he will be induced to give us some information on the subject, particularly on the effect of ploughing in green crops on such soils, and he will thereby lay under great obligations, Your constant reader and subscriber,

A POOR CLAY-LAND FARMER.

North Britain, Sept. 5.

RATING OF TITHES TO THE RELIEF OF THE POOR.

THE QUEEN V. CAPEL.

The following circular, on the subject of rating of tithes to the relief of the poor, has recently been forwarded to the churchwardens and overseers of the various parishes throughout the kingdom, by order of the Poor Law Commissioners:—

"Poor-law Commission Office, Somerset House.

"RATING OF TITHES TO THE RELIEF OF THE POOR.

"Gentlemen,—The judgment of the Court of Queen's Bench has been delivered in the case of the 'Queen v. the Hon. and Rev. William Capel, Clerk.' The Court has decided that the title-owner is to be rated for his tithes, upon the same estimate of their net annual value as is provided for all other rateable hereditaments, by the first section of the Parochial Assessment Act (6 and 7 William IV. cap. 26), and that the title owner is not entitled under the proviso in that section, to any deduction or allowance corresponding with the profits of occupiers of lands, houses, &c.

"While the question as to the extent of the tithe-

owners' responsibility was in dispute, and with a view to prevent unnecessary litigation in the multitude of appeals which were then to be apprehended, the Poor Law Commissioners recommended, by a minute of the 8th of September, 1838, that a single case should be selected in some one parish for argument, and that in all other parishes provisional arrangements should be adopted between the overseers and the tithe-owners, which would allow of an eventual settlement of the payments to be made by the tithe-owners in conformity with the principle of any decision which might be obtained upon the selected case.

"The case of 'The Queen v. Capel' was eventually selected to try the question in dispute, and in accordance with the recommendation contained in the minute of the Poor Law Commissioners, the rates were in many parishes laid on the net annual value of tithes, and a portion only of such rates was collected, an arrear being allowed to remain proportionate to the deduction which the tithe-owners claimed.

"But rates on the whole net annual value being now, by the decision in the case of 'The Queen v. Capel,' determined to be correct, it has become the duty of overseers to collect from the tithe-owners any arrears which may have been allowed to accrue; and in future rates to assess the tithe-owners on the whole net annual value, and to collect the whole rate so assessed.

"By order of the Board,

"EDWIN CHADWICK, Secretary.

"To the Churchwardens and Overseers of the poor."

HOOSE IN CATTLE;

THE SPONTANEOUS CURE OF.

By R. B. Gellé, of Toulouse.

(From the Veterinarian.)

Our readers, we hope, will find both pleasure and profit from the perusal of this short extract. It is taken from portions of the lectures of the Professor, which we were compelled to omit in some previous numbers.

"The treatment of hoose in cattle is effected, first, by the escape of the disengaged gases, either by the mouth or anus; secondly, by the neutralization of these gases by certain medicaments; and thirdly, by the puncture or incision of the paunch, by means of which the gas and aliments are evacuated.

"Let us examine these different means, and the different indications which the varieties of meteorization present. When the extrication of gas is inconsiderable, the walking of the animal about will often effect a cure; but when the tympanitis is serious, other measures must be used. Liquid ammonia, or ether, may cause a sudden diminution in the bulk of the gas, or, in various cases, even of considerable intensity, nature has been found to effect a cure without the aid of art.

"Observation having proved that, in serious cases of hoose, the gas cannot naturally escape from the paunch in a sufficient quantity to effect a cure, it has been proposed to assist its escape by means of a flexible tube introduced into the œsophagus; but this proceeding is dangerous, especially in unskilful hands. Many medicaments possess the property of neutralizing the gas extricated from the aliments contained in the paunch. Chabert, considering that these elastic fluids were in a great measure composed of carbonic acid gas, recommended the use of certain alkalies, particularly lime-water, the potash of commerce, and more particularly liquid ammonia.

The success which attended this mode of practice gave it considerable reputation: it is at the present day the remedy most usually employed, in doses of an ounce and a half for the larger ruminants, and of two drachms for sheep, mixed in a pint of water for the first of these animals, and a glass for the second. Experience has proved to me its efficacy whenever the meteorization has been recent, and produced by green food, because in this case there has been no inflammation of the digestive organs. The effects of the medicine should be assisted by leading the animal about, and by clysters of warm water holding in solution some kitchen salt or common soap. These will generally produce the evacuation of the excrement accumulated in the large intestines.

"But, whenever the state of the pulse, the redness of the tongue, and the heat of the mouth, have caused me to suspect the commencement of inflammation, I have always had recourse to sulphuric ether, because it very promptly condenses gases, and does not cause any dangerous irritation. The spirituous infusion of balm has a stimulating and diffusible property which produces a dilatation of the membranes of the paunch without too much exciting the nervous system; and it is second in action only to the ether. 'This is one of those medicines which the veterinary surgeon should never be without,' says M. Prevost: 'I have the greatest confidence in ether. In effect, it often acts with an astonishing promptitude.' Whatever may have been the circumstances which have given M. Prevost so favourable an opinion of ether, I can only say that I was in the habit of using it a dozen years before the publication of the memoirs of that gentleman. I have been as successful with it in the flatulent colic of the horse as in the hoove of cattle. One circumstance, however, must be expected with regard to the cow—the milk will be spoiled, for it will acquire an almost insupportable smell of ether. This generally disappears on the third day, or on the fourth at the latest.

"M. Chalot has also a favourite remedy. Most of the chlorurets have considerable good effect in neutralizing the gases disengaged in the rumen; but that which, in his opinion, has most effect is the chloruret of the oxide of sodium.

"Whenever the meteorization is extreme, and the inflation of the rumen is so great as to interfere materially with the action of the diaphragm, and threaten a rupture of it, a puncture should be effected by means of the trocar. This opening should be made at the superior part of the left flank, corresponding with the superior face of the rumen, at an equal distance from the last rib, the external angle of the paunch, and the transverse lumbar apophyses. Although the operation should be a last resource, according to Fromage de Feugré, it is nevertheless essential that it should take place before all hope has vanished, as it is probable that the discredit which has followed its delay is more to be attributed to the previous hesitation and doubt of the persons employed than to the temerity of the surgeon. It is for the veterinarian to decide, cautiously yet firmly, on the proper time.*

* It is difficult to imagine what can be the cause of the hesitation and fear of the French veterinary surgeons with regard to the application of the trocar. We are in the habit of using it, and with much success, and never with bad effect, in an early stage of the complaint. We may be enabled to prevent a

"I would now make a few observations on nephritic indigestion, arising from over-feeding, a malady more frequently occurring among stalled beasts, or those who have been kept upon dry food. It is characterized by a less sudden distension of the rumen, with hardness and fulness of that stomach—rapid loss of flesh—the pulse small, concentrated, and often feeble, and this always succeeded by inflammation of the digestive organs if not combated in time. Some veterinary surgeons have confounded this malady with gastritis, complicated with inflation of the rumen, of which we shall hereafter speak; but this is an error. In gastritis the meteorization is only secondary, and to be attributed to the fermentation of the food contained in the paunch longer than the usual time, on account of the suspension of the rumination. In tympanitis from overloaded stomach, meteorization is frequently the first symptom, and to which we must also add the fulness and hardness of the paunch, for that organ is, secondarily at least, the seat and source of the inflammation of the organs of digestion.

"This variety of tympanitis resists the power of mucilaginous drinks—of ammonia—of ether—and even also of the puncture. The accumulated food, hard and dried in the rumen, forms certain pellets which, on account of their bulk, can no longer be returned to the mouth for a second mastication, for they are beyond the contractile force of the first stomach: it is absolutely necessary to cut into the paunch, and to introduce the hand, in order to empty it of its contents.

"I think that it is injurious to pour any liquid in considerable quantity, whether medicated or nutritive, through the incision made into the paunch, in order to extract the food with which it is surcharged.

"The paunch is not the stomach where the aliments are digested, that is, changed into chyle, or where the chyliferous absorption commences. Those which enter that stomach in a pulpy state must re-ascend to the mouth and become ruminated, not having been sufficiently comminuted by the first mastication. It is necessary for the accomplishment of this re-ascension that the paunch should contract itself in every way, in order to push the food towards the esophagean canal, whose lips open to receive and mould the alimentary ball, which passes through them and remounts to the esophagus. The energetic contraction of the muscles aid the ascension; but if the paunch, after having been cut or punctured, and inundated with fluid, contracts itself, whether by means of the stimulus of the substance which it contains, or to effect the ascension of the alimentary pellet when it is thus filled with both solid and fluid contents, is it not to be feared that some portion of the fluid and solid food will pass through the incision, and fall into the abdominal cavity? The presence of these substances in the peritoneal sac will invariably produce violent inflammation, and the death of the animal. Of this I have had many proofs, the particulars of which I cannot, for obvious reasons, now enter into."

Mr. Sotham, a spirited farmer, resident at Perch Lake Farm, Jefferson county, in the state of

too rapid extrication of gas,—we afford it a means of escape as it is extricated, and remove much of the irritation which arises from distension of the rumen.

New York, sailed in a vessel which left the St. Katharine's Docks on Wednesday, Aug. 19, bound for New York, taking with him as fine an assortment of cattle, sheep, and pigs as have ever been exported to America. The lot consisted of

Mr. Walker's Hereford cow, which obtained the prize at Oxford last year, and

A yearling bull, her offspring.

Four Hereford cows and seven yearling Hereford heifers, of the stock of Messrs. Hewer, of Northleach.

Twenty Cotswold rams, from the stock of the same gentlemen.

Two Durham cows, purchased of Mr. Lovell.

A half-bred Hereford and Durham, from Mr. Cothier.

Ten South-down ewes.

A cart stallion, and

A cart mare.

A sow and pigs, bought of Mr. Lovell, and

Sixty-five pigs of different sorts.

Mr. Sotham intends to make frequent visits to this country, for the purpose of purchasing cattle for export to America, and we trust he will receive the reward which his well directed energies demand.

IMPORTANT TO FLAX SPINNERS AND GROWERS.—We have been informed that the Government of Belgium, having it in contemplation to impose an increased duty upon the export of flax from that country—whence our spinners derive their chief supplies of the finest kinds of the article—sent a deputation to visit these kingdoms, with a view to ascertain the state of our flax and linen trades, and to report upon the expediency of the proposed tax. One of the deputation is a Member of the Belgian Senate, two others are Members of the Chamber of Representatives, a fourth is a banker, and a fifth an intelligent merchant. The deputation visited Belfast last week, and inspected the establishments of several leading manufacturers in the town and its vicinity, to whom they had letters of introduction. Their enquiries were particularly directed to the subject of Irish flax, the mode and extent of cultivation, preparing processes, manner of sowing the seed, profit to the grower, the quality, and the proportion used here, as compared with Flemish flax. On these and other points, the Commissioners received much interesting information, for which they expressed themselves deeply obliged. Of the specimens of Irish flax submitted to them, some were of a fineness to which they had not considered our inferior mode of culture, and our machinery for preparing it for the spinner, capable of bringing the fibre. We have reason to believe that the representations made to the deputation in Belfast, as to the impolicy of increasing the duty on the export of flax from Belgium, coupled with the information to the same effect they will acquire in England (whither they have gone) and Scotland, will go far to dissuade their government from a proceeding, the inevitable effect of which would be to limit the cultivation of that crop by their own agriculturists, and to offer a premium to our flax growers to devote such attention to improving the quality of the home-grown article, as must, ere long, render us independent of any other country, for flax of the finest descriptions; for there can be no doubt that such could be produced in Ireland as well as in Belgium, if the same care

were paid to soil, seed, and preparation. But that the proposed increase of duty would occasion for a time serious inconvenience and loss to our spinners of fine yarns, by restricting their supplies of the raw material, and consequently raising the price of the manufactured article, limiting its production and consumption, and throwing numbers of the industrious poor out of employment, it were almost to be desired that some such emergency should occur to awaken the linen and flax-spinning interests in Ireland, and through them the growers of flax, to the necessity of adopting such means for the extended cultivation of that important crop, and the improvement of its quality, as would place it out of the power of a foreign government to influence our supplies of the article. We have little fear, however, that the Belgians, who are shrewd people of business, will be so blind to their own interests as to impose a tax which would diminish their revenue, impoverish their farmers, and restrict a valuable branch of their commerce, without promising any equivalent advantage.—*Belfast Whig*.

LIQUID MANURE.

The use of liquid manure has often formed the subject of remarks and recommendation by those agriculturists who are conversant with the practice of foreigners on this point of rural economy; and attempts have been made by them to induce our British farmers to imitate their foreign brethren; but these attempts have hitherto proved in a great measure ineffectual, and the English system of dry or solid manure is still pertinaciously adhered to. There is, however, a pretty general opinion prevailing amongst the leading agriculturists that the subject is deserving of rather more consideration than has hitherto been bestowed upon it by the farmers of England; and that it is open to inquiry, whether the English or the continental mode of management of manures be superior.

For the information of those who may not be quite aware what is the foreign practice on this head, we may mention, that it is not only the custom in those parts of the continent which are most advanced in the science of agriculture, to collect and preserve in tanks and reservoirs every species of liquid which contains any enriching quality, but also to dissolve solid manure in water and other liquids, and to irrigate both arable and grass land with it. It is contended by foreigners, that the effects of this irrigation are far more beneficial than the application of the same quantity of manure in a solid form; and it must be owned there is ample testimony, that most productive crops are obtained under this system.

In the consideration of this practice, it is essential to separate it under its two natural heads:—1st, the use and preservation of manure which is already in a liquid shape; and 2ndly, the reduction of solid dung into that state. We shall, in the first place, offer a few remarks upon this latter mode of management.

The principal objection which will strike the mind of an English farmer, is the vast increase of carriage which must be occasioned by it. It has been the constant aim of English agriculture to diminish road work, and to condense manure into as small a compass as can be attained without deteriorating its strength; and we must say, we think the principle a sound one. The advantages of bones from the mere fact of their portableness, will at once

occur to every one as an instance in point. The foreign practice of converting solid manure into liquid, is in direct opposition to this principle. But we are met in this objection by the assertion, that foreigners procure most abundant crops by the practice, and it cannot be denied that this is true. In the first place, however, we ought to set the additional leading against the increase of produce; and we are not quite sure that with the high rate of labour in England, much augmentation of profit would then be shown. And supposing it were, there are other points which strike us in the case. Liquid manure cannot be so lasting as solid dung, and though the first crop will be greater from it, for the simple reason that it is in that fluid state which is requisite for vegetation, it would appear quite clear that the second crop will meet with less sustenance in the land. Aware of this, the foreigner applies more tillage ere he sows a second crop; and it is thus evident that he is adopting a system of high manuring, which cannot fail of producing abundant crops. Again, in many of those districts where this practice of liquid manure seems to confer such benefit, the climate is of a drier nature than in England, and there the application of a fluid to the land is eminently advantageous. With our humid climate we have too often more moisture than is desirable; and the solid manure is rarely injured, when once in the ground, by drought; nor kept from a dissolution quite as rapid perhaps as vegetation requires it.

Upon these grounds, we think that the English system of solid manures is far sounder in principle, as applicable to the climate under which we live; and we see no cause why our countrymen should attempt to imitate the foreign farmer. But in the economy and application of the manure which is already in a liquid state, it certainly strikes us that the British agriculturist is far behind his continental brethren.

No one who is aware of the value of liquid manure, can fail to notice with regret the waste of it which is to be seen in almost every farm-yard in England, the drainings from the fold, from the stables, and the sheds being allowed to flow away without the slightest attempt to collect and apply them to the land. It is obvious that a source of fertility is here unheeded and unknown. The more frugal, and in this instance more skilful foreigner, collects in tanks such valuable materials, and with the aid of water-carts, irrigates his farm with them. This practice we earnestly and strongly recommend to the English farmer. We are aware that many will meet us with the objection, that the cost is greater than the thing is worth; but to this we oppose a decided contradiction. From actual observation of the system we advocate, we are enabled to assert that the expence is trifling, whilst the advantage is so great that it needs but a fair trial to bring it into general use.

We would recommend that all the stables, sheds, &c. should be made (as indeed is generally the case) to drain into the fold yard; that all liquids of every kind coming from the house should also be conveyed to it; and that a tank should be constructed to receive the whole of the drainage from the fold, which will include the rain water falling upon and passing through it, but bringing, however, a strong admixture of manure. This tank, as often as it gets filled, should be emptied by means of a pump, and carried in a water cart upon the land. There is upon all farms, where it can possibly be attained, some grass-land adjoining the homestead, which it is essential for the sake of convenience, to keep in good health;

and it seems to us that the liquid manure cannot be better applied than for this purpose. We have heard it asserted upon authority upon which we place great reliance, that on a farm of 200 acres where the ordinary number of stock is kept, sufficient liquid may be obtained by this plan for manuring well ten acres of grass land yearly; and we need not point out that this is a great and desirable advantage. The labour of the operation is comparatively of slight moment, because it is performed far more rapidly and expeditiously than those who have not witnessed it perhaps imagine; and it is, moreover, done by the farmer's own horses and men without additional assistance.

The first expences of starting this system are, however, to be considered. We have already said that they are not of great amount; and we will now proceed to point them out.

There are required a tank, a pump, and a water-cart. The cost of a tank capable of containing 50 hogsheads, which we apprehend would be large enough for any farm, would be about eight guineas, the walls to be bricked and cemented, which is the most durable construction. We of course suppose in this calculation that in the excavation of the pit there is no rock or very hard substance, as this would increase the expence. A pump, supposing a new one to be put down, might be procured for about four or five pounds; and a water-cart for about eight or ten pounds. The whole expence would consequently be from twenty to twenty-five pounds;

and with this first outlay a farmer would be yearly able to manure from his own fold-yard a great additional number of acres, without a farthing more expenditure in labour, or increase of his bill with his tillage merchant.

For these reasons we urge the subject on the earnest consideration of our agricultural readers; and we especially solicit the attention of those who are in the position of landlords, because we think that the first effort to effect this improvement ought to be made by them. The construction of the tank, as it will form one of the permanent buildings of the homestead, ought clearly to be defrayed by them; and if the tenant finds the pump and cart, the expence will fall lighter on either party. But whether the first impulse come from the owners or occupiers of land, the sooner it be made the earlier will the profit be assuredly felt.

Although this may be copying from foreigners, we are not advocating a system which is altogether unknown even in our own neighbourhood. We are informed that it is not only fully, but successfully, adopted on the farm of E. B. Beaumont, Esq., of Finningley Park; and we would urge upon those who are slow to credit the advantages which we point out, to inquire for themselves what have been the results of its adoption; for we feel assured that the more the subject is investigated, the more the accuracy of our views will be apparent to them.—*Doncaster Chronicle*.

MOODY'S NEWLY-INVENTED PATENT ROOT-CRUSHER.

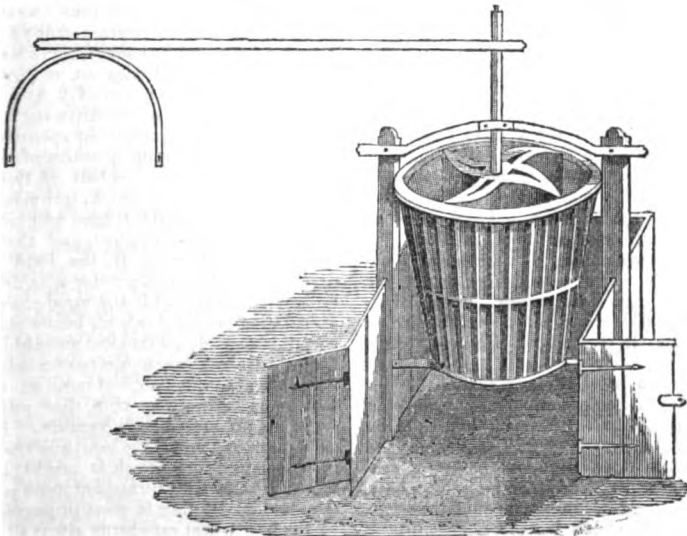
The subjoined drawing represents a machine for crushing Swedes, and all bulbous roots, invented by Mr. E. Moody, Maiden Bradley, Wilts, upon whose farm its beneficial effects, both as regards economy in food, and the nutrition afforded the sheep and cattle, &c., have, it is said, been fully proved.

The machine only requires the attention of a boy, and with the power of a small pony will crush sixty bushels in an hour, reducing the roots to a pulp, which, mixed with a proportion of chaff, is eagerly devoured both by sheep and cattle, and prevents waste. A machine on the same princi-

ple, worked by hand, requires the power of but one man, and will crush fifteen bushels an hour, and might be used for grinding apples.

The undermentioned gentlemen, with many others, have one of the machines in use, and recommend it to the attention of farmers.

T. H. H. Phipps, Esq., Leighton House; J. W. Peters, Esq., South Petherton; H. Miller, Esq., Frome; Mr. G. Parsons, West Lambrook; Mr. Joseph Harding, Rodmead; Messrs. Jefferys, Maiden Bradley; Mr. Thomas Burge, Baycliff; Mr. Lush, Kilmington; Mr. Chandler, Stockton; Mr. Attwater, Britford.



WESTER ROSS FARMERS' SOCIETY.

It will be seen, from the subjoined report of the meeting of the "Wester Ross Farmer's Society," that the proceedings must have been of a very interesting character. One of the most prominent matters, was the signing a petition to be presented to the Highland Agricultural Society, for the establishment of "experimental farms" throughout Scotland, and another to the Royal Agricultural Society of England for the like cause, we perceive, *throughout* England. The term *throughout*, seems to contemplate *several* experimental farms in each division of the kingdom. Now we should esteem it an obligation, if some one of the gentlemen who signed the petition, would favour us with a detailed statement of the amount of capital, the stock, implements, &c., requisite for "one" such establishment. As a model of such a statement we would refer to the "Report of Whitfield Example Farm," by John Morton, given in the appendix to the last edition of his book on soils, and which will also be found in the "Farmer's Magazine" for May last, page 415. On the subject of fallowing, the Chairman, Sir F. Mackenzie, gave it as his opinion that fallowing might be wholly dispensed with, if sufficient attention were paid to weeding the land; and that crops of beans, potatoes, tares, and clover, preparatory to wheat, were better than fallow. In this opinion we cannot concur with Sir F. Mackenzie; we believe that fallow may be dispensed with in a great many situations in which it is now used: in fact in many districts, even where the land is light, the occupiers seem to think it almost necessary to let the weeds and grass grow in abundance, that they may have a fallow. Somewhat in the same spirit with the farmer, who felt at a loss to know how he should find fodder for his young cattle in the ensuing winter, the season having been so fine as to prevent his having any inferior hay. But we know that we shall be borne out, by the best practical farmers, in stating, that there are some soils which need, periodically, additional cultivation and exposure to the atmosphere, not merely for the purpose of destroying weeds, but of rendering them more friable and increasing their fertility.

On Friday the 7th August, the Wester Ross Farmers' Society held its quarterly meeting at Dingwall, when a committee was appointed to select a salesman of their own for the London market, and after the routine business of the forenoon, a large party sat down to an excellent dinner, at the Royal Hotel, Sir Francis Mackenzie in the chair, H. I. Cameron, Esq., croupier. After the usual toasts were given and drunk, the Secretary read the petition to the Highland and Agricultural Society, for the establishment of experimental farms throughout Scotland, which was unanimously approved of and signed by all present; and it was also resolved to petition the English Agricultural Society on the same subject, convinced as they were of experimental farms being of paramount importance. Thereafter a long and interesting discussion took place, on the best preparation for sowing and obtaining a crop of wheat, which was begun by Mr. Monro, who quoted various parts of Sir John Sinclair's works on agriculture,

and recommended fallow, early and hardy varieties of seed, the use of blue vitriol as a preventive of smut, and guarding against the indiscriminate use of fresh dung as having a tendency to produce mildew. He also recommended the use of salt, at the rate of 6½ bushels per acre. Mr. Ross considered beans manured the best preparation for wheat in this country. Mr. Denman concurred with Mr. Ross as to the value of beans, but stated, of course grass seeds could not be sown after them, and that fallow was necessary on all soils occasionally, excepting those of a light, sandy nature. Mr. D. added, that the mode of preparing fallow in this country was very objectionable; he recommended dunging early, forming the ridges of 36 feet instead of 18, and drilling in the seed with the drill machine at the depth of four inches. For rust or mildew Mr. D. thought no remedy could be found, but that smut arose solely from want of care in the pickling of the seed. Major Mackenzie thought potatoes the best preparation for wheat, and concluded with a number of useful observations, drawn from long experience, and confirmatory of the remarks made by preceding speakers. The subject was now taken up by the chairman, who stated that he wholly objected to fallows as being only necessary when the attention of the farmer was not sufficiently turned to weeding his crops, and that he considered fallows for wheat by no means so valuable as beans, potatoes, tares, and clover; that in Essex they now invariably took barley and grass seeds after fallow, instead of wheat, as formerly; he felt convinced that the green crops would always pay more than the cost of cleaning the land, whilst the working of fallow was money wholly sunk. Sir F. then alluded to drilling of wheat, and stated that from his own experience there was a decided advantage in drilling; that on a discussion lately at one of the principal farmer's society meetings in Essex, it was finally agreed that broad cast sowing of wheat was out of the question, whilst the number in favour of drilling and dibbling were equal. Sir F. however having tried dibbling on his farm in a pretty extensive scale, thought it was unsuited for this climate, for reasons too long to detail. Sir F. stated that he was preparing a drill after the one invented by Mr. George, of Norfolk, a distinguished agriculturist there, which drills the seed at 14 and 4 inches, thus leaving room for weeding the corn at all stages of its growth, and thus having it perfectly clean for the following turnip crops; with regard to weeding he stated that Mr. George having left half a field unweeded, and cleaned thoroughly the other half, there was an increase of 2 qrs. per acre on the weeded alone, that on the dirty half. Cleaning and weeding Sir F. considers indispensable, for the land could give but a certain quantity of anything, and if half were weeds, only one half of the crop of corn would be produced. Sir F. quite agreed with Mr. D. as to the size of the ridges, and said that furrows should be wholly abolished, and that there was no necessity for furrows if the land were properly drained, and that if rain water was dreaded, it ought to be saw-furrowed with the spade. As to the best preparation crop for wheat, beans and potatoes he certainly considered the most suitable in this country. In the Lothians much was sown after turnips, fed off with sheep, which had not answered here, but that he had a first-rate crop this year after Swedes, taken up and stored in November. Early sowing he considered injurious, the best time was the first week in November, for though it might look stunted in winter it invariably turned out most productive under the sickle. Rolling is most important, as is proved by the best wheat ears being always by the side of a

foot-path which is well trampled on. Fresh dung he considers injurious, as it produces rank leaves, a small ear, and a tendency decidedly to mildew. He has been assured by Mr. Franks, one of the most successful wheat growers in Essex, that the most profitable way of applying dung was by laying it on the young clover in winter, by which means an immense weight of hay was produced and a very superior crop of wheat afterwards, from the dung being old and completely absorbed by the earth.

Sir F. recommended the use of the grubber as one of the best novel inventions of the day, doing the work of 2, if not 3 ploughs in cleaning the land from weeds, while at the same time, it did not too much pulverise the soil. He cautioned against the over draining of land and thereby depriving it of its tenacity, which was so favorable for the growth of a heavy crop of wheat. He concluded by adverting to the choice of seeds suited for this climate, saying, that so far as he could yet judge from the appearance of his experiments with various kinds of wheat on his farm this season—Golden Drop, Sugar Pearl, and Suffolk thickset: Tunstal thickset was the only one rusted, and therefore unfit for this climate, though otherwise a beautiful variety of wheat. Sir F. then thanked them for the attention paid to his lengthened remarks, and invited those present as well as any agriculturists anxious to see the results of his experiments, to visit and inspect his farm on Friday, the 21st current, when he should be himself present, and when he should be obliged if his visitors pointed out or suggested any remedies for errors which they saw he had committed in his cropping and improvements. —*Communicated. Inverness Herald.*

ON THE USE OF LINSEED.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I imagine your correspondent "Lintseed," instead of being "convinced" must be only of *opinion*, that as the fattening properties of Linseed consists in the oil it contains, it may be prepared in some way, and rendered more advantageous in fattening cattle than by giving the cake, which is the refuse.

Some of your readers probably may have made sufficient trial in various ways (for the idea is not a new one), and may have discovered a method, and proved to a certainty, that it may be so prepared. As to cake, much depends upon its genuineness, and the state it was in at the time of using. Whether it is from pure linseed and lately crushed, or whether it may not contain an admixture of certain oleaginous seeds, which, though they contain a portion of oil, their husks contain very little nutriment, old turnip seed, rapeseed, and others, being occasionally used by the seed-crushers; also, when cake is old, especially foreign, and has become mouldy, it is brushed over with linseed oil, and appears fresh to the eye, but cake thus treated is readily detected by an experienced person. Experiments to ascertain the relative merits of the different methods, require to be made with much more accuracy than is usually bestowed on them, before a satisfactory conclusion can be drawn from them. Linseed as a food, in consequence of the oil it contains, is generally, at first, loathsome to cattle, and some are longer than others before they can overcome this effectually. Breeders of stock should give it their calves in small quantities at first, with

a small portion of salt, and when they have once acquired a taste or relish for it, it never leaves them, and in whatever way linseed is afterwards given, their relish for it causes them to consume it with avidity, and its effects are presently seen.

I have given linseed to cattle after being bruised, after boiling to a jelly, mixed with barley-meal, bean-meal, cut chaff, hay, &c.; cut meat mixed with a portion of the pure oil. It is beneficial given by any of these methods, but subject to great waste without considerable cure; perhaps steamed with other food may be the best among these methods, and least liable to waste. But as far as my experience has gone, that if linseed is bought at 50s., and good cake at 13l. per thousand, that the cake is to be preferred, as being cheaper, less liable to waste, and much less trouble in using, and better suited to the appetite of the animal, than by any preparation of the seed alone.

I am aware these observations do not contain exactly the information sought by your correspondent, and that the experience of some of your readers will cause them to differ in opinion with me. If so, I hope they will give "Linseed" and your other readers the benefit of their experience, as cake, though very efficient, is an expensive article in fattening stock.—Permit me to remain, Mr. Editor, your obedient servant,

A YEOMAN OF KENT.

SIR,—I observe in your last number an inquiry as to the best mode of preparing linseed for fattening cattle. If four bushel of bran and two bushel of short be well mixed with four bushel of linseed, and ground altogether (on a pair of black or cullen millstones), they will make a rich, nutritious feed, equal, if not superior to oilcake. The bran and shorts not only prevent the millstones from clogging, but absorb the oil that comes from the linseed.

Yours,

A RUTLAND GRAZIER.

SIR,—In your paper of the 31st ult., a correspondent requested to be informed "the best method of preparing linseed for the feeding of cattle and sheep." I beg to suggest the following, which is very simple, and can be tried without any expense or risk:—To about four bushels of pollard mix one bushel of seed, and send it to the mill to be ground. I may not have stated the exact proportions, but this the miller will soon discover, as the seed being of a gelatinous nature, would clog the stones, and thereby prevent them from working freely. If the above method is found to answer, I would recommend it to be kept in small quantities, for if laid in a large heap spontaneous fermentation might take place. Should you think the above worth publicity, you are at liberty to do so through the medium of your valuable Journal.

I am, Sir, your obedient servant, J. B.
Long Melford, Suffolk, Sept. 9.

NEW PATENTS.

John Sanders and William Williams, of Bedford, ironfounders, and Samuel Lawrence Taylor, of Old Warden, Bedford, machine maker, for improvements in ploughs.—Aug. 3.

Downes Edwards, of Surbiton Hill, Kingston, Surrey, farmer, for improvements in preserving potatoes and other vegetable substances.—Aug. 8.

Baron Chas. Wetterstedt, of Limehouse, for improvements in preserving vegetable, animal, and other substances, from ignition and decay.—Aug. 11.

Y 2

REPORT OF THE COMMITTEE OF THE HOUSE OF COMMONS ON BANKS OF ISSUE.

The Select Committee appointed to inquire into the Effects produced on the Circulation of the Country by the various Banking Establishments issuing Notes payable on demand; and to whom the Petitions presented this Session relative to Currency and Banking, and the reports of former committees on banking were referred:—Have considered the several matters referred to them, and have agreed to the following Report:—

Your committee, in prosecuting the inquiry entrusted to them by the House, have examined evidence, and called for various accounts, for the purpose of elucidating the management of the affairs of the Bank of England since the last renewal of its charter, and also of ascertaining the amount of the circulation of the other banks issuing notes payable on demand, throughout the United Kingdom, during the same period.

Accounts containing minute information, upon every point, which it appeared to your committee desirable to call for, relating to the Bank of England, have been furnished by the bank.

The private and joint-stock banks in England and Wales have sent, through the Stamp-office, returns of their issues, from week to week, for the last six years.

A similar account has been furnished by the various banks in Scotland, which information is the more valuable, from its never having hitherto been laid before Parliament.

The Bank of Ireland has sent in returns of its liabilities and assets for every week during the same period as has been required from the Bank of England.

The private and joint-stock banks in Ireland have furnished accounts of their issues similar to those of the private and joint-stock banks in England.

Your committee consider it to be only just and due, both to the Bank of England and to these various parties, to state that the greatest readiness has been shown by them in furnishing all the accounts which your committee have required.

With regard to the evidence which your committee have taken, they, in the first instance, examined several witnesses, who stated generally the evils which in the last few years had, in their opinion, been caused by the management of the circulation. They then called before them two of the directors of the Bank of England, who have given detailed information as to the management of the affairs of the Bank. It was their intention to have proceeded in the next place with the examination of such witnesses as might have afforded similar information respecting the management of other banks of issue. Towards the close, however, of the examination of the witnesses on the part of the Bank of England, it became evident that it would be impossible during the present session to conclude the evidence of the witnesses connected with the other banks of issue; and under these circumstances your committee thought it more advisable to postpone the examination of this class of witnesses, and to summon one or two persons who were known to have paid particular attention to the management of the Bank of England, and whose evidence upon this point it was, therefore, desirable to have before them.

Your committee trust that this statement will sufficiently account for their not reporting any opinion to the house on the main subject of their inquiry; and they feel that they shall best discharge their duty by merely submitting to the House the evidence which they have taken, although they are fully aware of the imperfect character of that evidence, arising from the circumstance of their having been prevented, by the approaching termination of the session, from examining witnesses whom they had proposed to call, on other important branches of their investigation.

They also submit, in the Appendix, the accounts to

which they had before referred; in which, as well as in the evidence, they feel confident that much valuable information will be found upon the subject of their inquiry; a renewal of which they would earnestly recommend to the early attention of the House in the next session of Parliament.

In the course of their inquiry into the management of the affairs of the Bank of England, the attention of your committee has necessarily been directed to the principle by which it was stated in the evidence taken before the Bank Charter Committee in 1832 that the Bank was in ordinary circumstances guided in the regulation of its issues. This principle has been re-stated to your committee, in Mr. Horsley Palmer's evidence, in the following questions and answers:—

1142. Chairman: As it was mainly your evidence given before the Bank Charter Committee in 1832 which contained the exposition of the principle by which in ordinary times the Bank is guided in the regulation of its issues, will you have the goodness to re-state that principle to the committee?—I will re-state it in as nearly the same words as I can. The principle, with reference to the period of a full currency, and consequently par of exchange, by which the Bank has been guided in the regulation of its issues, always excepting special circumstances, has been to retain an investment in securities, bearing interest, to the extent of two-thirds of their liabilities, the remaining one-third being held in bullion and coin; the reduction of the circulation, so far as may be dependent upon the Bank, being subsequently solely affected by the foreign exchanges, or by internal extra demand.

1143. Did you not also state it as desirable, in ordinary circumstances, that the securities should be retained at nearly the same amount?—Yes. The object of retaining a fixed amount of securities by the Bank at the period alluded to, and continuing it afterwards, so far as may be practicable, is to throw the action of the increase or decrease in the circulation upon the public, with reference to the state of the foreign exchanges, in the import or export of bullion.

1144. Are the answers which you have now given a fair exposition of the principles upon which the conduct of the bank has been regulated since the period of the renewal of its charter?—I should say certainly, always taking into consideration the extraordinary circumstances that have intervened.

Your committee would upon this point wish to call the attention of the House to the evidence of the two Bank directors who have been examined, Mr. Horsley Palmer and Mr. Norman, from which it appears that in several instances since 1832 the rule then laid down has not been adhered to; and doubts have been expressed as to the soundness of its principles, as applicable to the Bank of England, from its mixing up deposits and circulation. It appears, however, at the same time, from the following questions and answers in Mr. Norman's evidence, that the Bank directors conceive that this rule has received some sort of legislative sanction, in consequence of which they feel bound to adhere to it as nearly as circumstances will permit, and that on a particular occasion they were fettered by this impression:—

1890. Referring to the accounts of the bank, does it not appear that the drain, in the first quarter of 1839, fell almost entirely upon the deposits of the bank, and in no degree upon the circulation?—I believe that it fell almost wholly upon the deposits.

1891. The effect, then, which you anticipated in a former part of your evidence, from any reduction of circulation during a drain, did not take place during that quarter?—No, not to any considerable extent.

1892. Would it not have been expedient that the Bank should in that quarter have taken some measures for the reduction of the circulation, looking to the rapid drain which was going on?—The Bank considered itself at that time bound to adhere as nearly as it could to the principle of holding a fixed amount of securities, that principle having been to a certain extent recognised by the legislature and the public; but if I am asked now, with my present experience, whether it would not

have been wise in the Bank to have taken earlier measures, I must say that I think it would have been wise so to do.

Without entering into the question either of the soundness of the rule, or of the degree of sanction which it may be supposed to have received from the Legislature, your committee are clearly of opinion that such an impression on the part of the directors of the Bank of England ought not to prevent them from adopting any other principle of management which, after their further experience, and upon mature consideration, they may consider to be better adapted for the primary object of preserving, under all circumstances, the convertibility of their notes.

Aug. 7, 1840.

JOINT STOCK BANKS.

The committee of deputies of the joint-stock banks have issued a circular report of their proceedings since the 4th of June last, when the general meeting of deputies was held. This document communicates nothing of any special novelty beyond the fact of preparations for taking the field vigorously in the ensuing session of Parliament. It was before known that the examination of Mr. Stuckey and Mr. Gilbart on behalf of the banks was postponed till then, on account, as Mr. Charles Wood, the chairman of the Bank committee of the Commons' House, very fairly stated, of the length to which the examination of some of the witnesses had extended, and the expediency of bringing "towards a conclusion the evidence relating to the Bank of England," rather than to "commence upon evidence relating to country issues," in which from the approaching termination of the session little progress could of course be made. It might seem rather partial and injurious to the joint-stock banks that the evidence so far, from taking part in which their advocates were excluded, should be prematurely published because of course not in a complete form. But we are inclined to think the advantage of this in one respect will more than compensate the prejudice, if any, which might result to their disavowal by the publication of incomplete or *ex parte* evidence. For now the whole of the body will have the evidence before them in the most approved form, and with ample time to digest and dissect it. The late amendments in the law of joint-stock banking with respect to suing or prosecuting partners criminally are referred to with satisfaction. The contemplated course of future action is thus alluded to:—

"With a view to ascertain the parliamentary strength of the joint-stock banks, the committee of deputies will feel obliged if you will have the goodness to send them the names of any members of Parliament who may be directors or shareholders in your bank, and also of any other members whom you know to be friendly to the cause of joint-stock banking.

"The committee will also thank you to send them the names and addresses of any persons whom you can recommend as proper witnesses to be examined on behalf of the joint-stock banks, before the parliamentary committee at the commencement of the next session.

"The committee would also further impress upon you the necessity of explaining to those members of Parliament with whom you are acquainted the true principles on which the joint-stock banks are founded, and the present imperfect state of the law—of distributing throughout your district these publications that contain the best defence against the attacks of our opponents—and of co-operating powerfully and perseveringly in any parliamentary struggle in which we may be compelled to engage."

ON THE HOOSE IN CALVES.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In looking over the Mark Lane Express for August 31, I find a letter addressed to you, signed by D. J. L., soliciting information as to the best remedies for *Hoose* in calves, (not *hoove*, as the *then* editor of the Veterinarian, Mr. Youatt being ill, has very inadvertently and erroneously styled as the subject upon which my communication treated) and in which he states my having recommended lime water alternated with a solution of salt, but that I have not stated the quantities. The quantities, I think, are given in a former paper of mine, and which has probably not caught D. J. L.'s eye; however, as this is a subject particularly interesting to every farmer and owner of stock, with your permission I will forward from time to time the respective papers, as published in that valuable periodical, the Veterinarian, if you will not consider them as occupying too much space in your valuable paper.

I do not hesitate to assert that these simple remedies are quite a specific for this affection, so much more peculiar to the cloven-footed tribe than any other species of animals, and attended with a great fatality and consequent loss of capital to the farmer not easily appreciated. I have found that half a pint of lime water administered every morning to a calf, and a dessert spoonful of salt every evening, dissolved in half a pint of water, generally restores the animal in the course of a fortnight or three weeks. Where Twinters are affected, the dose is a pint of lime water and a table spoonful of salt. In sheep and goats, the dose is a quarter of a pint of lime water and three tea spoonfuls of salt. In deer, the doses are the same as in calves. The animals should be turned out into good sound pasture land, and where the water is either a pure running stream or where it is contained in a marl-pit. I have generally found those situations most liable to this affection where the land is peaty, lying low, and where the water runs through a boggy or peaty strata.

In extreme cases of *hoose*, where there is immediate danger of suffocation, there is no time to be lost in performing the operation of tracheotomy, which is done by making a longitudinal incision, from three to four inches long, down the front of the windpipe, midway between the point of the chest and the upper portion of the windpipe, cutting right down to the latter and laying it bare, so as to excise a square portion of two of the rings out; when there are no proper tubes at command to insert into this opening, take a large circular piece of cork, cut out a circular hole in its centre, insert it between the lips of the wound so that it may lie upon the surface of the windpipe, and fasten it down by securing a fine piece of gauze around the neck; this will be the means of keeping foreign bodies from getting into the trachea, and afford you time to get your remedial measures into fair play.

Often, individuals are so placed as not to have even these conveniences at command; under such circumstances, the animal will not generally take any harm by leaving the wound open altogether. As D. J. L. has made a general appeal to the profession, I trust I shall not be out of place in having, for one, responded to his call.

I remain, dear sir,

Your's most respectfully,

THOS. MAYER, SEN., V.S.

Newcastle-under-Lime, Sept. 8th.

ON AGRICULTURAL SOCIETIES AND FARMERS' CLUBS.

Actuated solely by the desire of elevating the position of the farmer, and of promoting improvement in agriculture by the most effective means, if at any time we should offer any remarks which may *seem* to throw an obstacle in the way, we trust we shall stand acquitted, should our views be erroneous, of a wish to prejudice that cause, which we most sincerely desire to serve. We this day lay before our readers a long report of the proceedings at a meeting of the "Warminster and South Wilts Farmer's Club," by which a more rapid progress has been made in carrying out the good objects contemplated, than by any other local institution of the kind, the proceedings of which has fallen to our lot to record. Before we proceed, however, to notice more particularly any part of the proceedings of the day, we will hazard one or two remarks upon the objects and constitution of Farmer's Clubs. Agricultural Societies have been long established in this country, "Farmer's Clubs" are, with one or perhaps two exceptions, of but very recent date. The difference in name alone, naturally leads to the conclusion that the nature of the proceedings of these institutions are different, although the ultimate object may be the same. The objects to which the attention of Agricultural Societies generally have been directed are, by competition for prizes offered, the improvement of the breed of cattle of every description, of agricultural machinery, and of the operation of ploughing, and the encouragement of deserving agricultural labourers. To these in some cases have been added, improvement in the different kinds of grain, improved cultivation, draining land, &c. Such have been, and such we hold to be strictly the legitimate objects of "Agricultural Societies or Associations." The objects of a Farmer's Club may be described as twofold, namely, improvement of the *mind* of the farmer himself, and improvement in the *practice* of his occupation. We cannot better describe the objects of Farmer's Clubs, than by repeating here an extract from the prospectus of the Isle of Thanet Farmer's Club, quoted by our excellent friend, R. B. Harvey, of Harleston, in his valuable essay, "On the advantages of Farmer's Clubs," which appeared in the *Farmer's Magazine* for December, 1839:—

"The formation of Farmers' Clubs is a new and interesting feature in agricultural history. By means of these institutions much valuable information is diffused; different modes of cultivation are compared and their results ascertained; improvements are suggested and made public; and the interchange of thoughts, opinions, and observations, promotes good feeling and in various ways exercises a beneficial influence. Among the objects sought to be attained by Farmers' Clubs are the following:—to ascertain the nature and qualities of the soils and subsoils of the district; to inquire into the comparative value of different sorts of manure; to test by experiments alleged improvements in cultivation, in agricultural implements, or in the management of stock; to discover the most profitable varieties in corn, seeds, or roots, and the most advantageous rotation of crops; to collect information respecting the state and progress of agriculture, by corres-

pondence, by establishment of agricultural libraries, and by such other means as may be deemed expedient; in a word, to advance the interests of agriculture in every possible way—reducing theory to practice, and throwing the light of knowledge and science over the most useful and important of the arts of life."

Upon this, Mr. Harvey pertinently remarks:—

"The allusion to agricultural libraries in the above prospectus, brings me to a part of the subject which, although the last mentioned, is not amongst the least of the advantages derived from Farmers' Clubs. It has been impossible for persons engaged in agriculture to procure any books treating on that science but at a heavy outlay of money, purchasing them at their sole expence; as should they have the wish or opportunity of joining the Book Club in the nearest market town, they will not find in it works treating on farming; and yet, if agriculture is to emerge from the stationary position in which from a want of the application of science it has so long been placed, how can this be accomplished but through the medium of books, and more particularly of periodical works, which by placing before us the suggestions, the experiments, or the practical knowledge of other cultivators, enable us to benefit by such information, and to pursue our own improvements with much better prospects of success?"

A Farmers' Club may, in other words, be called a "Mutual Improvement Society," to which each member contributes his portion for the benefit of the whole, where information is not so much gained by what is *seen* as what is *said*; whilst at the meetings of Agricultural Societies, more is learnt by what is *seen* than by what is *said*. Now by a reference to the proceedings of the "Warminster and South Wilts Farmers' Club," it will be remarked that the objects to which attention is directed, are those of an Agricultural Society; and it appears to us that the name of "Agricultural Society" would be much more applicable to it than that of "Farmers' Club." We believe it is intended to unite the objects of a Farmers' Club by having meetings, discussing agricultural subjects, establishing a library of agricultural works, &c., but in our opinion the union of the two objects will much prejudice the "Club." In the first place, a club should not be too numerous, the "Warminster Farmers' Club" we believe already numbers above one hundred members. Whenever the number of members attending a club are large, there will be generally a select few ready speakers, who will be first in taking part in the discussion, and opportunity will not be afforded to those who are more diffident, of offering their opinions. Now we are by no means ambitious to make all the farmers orators, but an exercise of this kind rouses the mental faculties, sharpens the understanding, and moreover the real bearings of the question under discussion, and its merits will be more correctly elicited by having the opinions of many rather than of a few individuals. There is another point in reference to "Farmers' Clubs," upon which we may perhaps entertain a peculiar opinion, which is, that the members should consist almost, if not altogether, of *practical farmers*, men who if they do not absolutely depend upon their business for support, still follow the pursuit for the purpose of making a profit by so doing. Influential

landed proprietors should be members of, and do their utmost to support Agricultural Societies; should encourage and render assistance in the establishment of "Farmers' Clubs" by contributing to the formation of Agricultural Libraries, &c.; but we do not think that their presence at the meetings of the Clubs will in any wise tend to promote the objects for which they are established. We make these remarks with the most sincere desire to promote the establishment and good organization of institutions, which we believe to be peculiarly calculated to advantage the practical farmer. And we shall be anxious to learn how far these opinions meet the views of those who take an active interest in these institutions.

To return to the proceedings of the "Warminster and South Wilts Farmers' Club," they are of a very interesting character. The prizes for the encouragement of deserving agricultural servants were numerous considering that it was the first meeting, and the history of several of parties who received the reward of meritorious service, is such as to excite a lively sympathy, to afford an excellent example, and to redound highly to the credit of both master and servant. On this head the county of Wilts may safely challenge a comparison with any county in England. The instance alluded to by the Chairman in his excellent address, that of a man who "receiving wages varying from 8s. to 10s. per week, had in the course of four years and three quarters, contributed not less than 30*l.* 17*s.* to the support of his aged parents," deserves to be recorded.

A deserving tribute was paid to the exertions of Mr. Ravenhill, in aiding to establish the club, and which we remember to have noticed when the prospectus for its formation was first announced. Speaking of agriculture, Mr. Ravenhill observed:—

"The cause of agriculture was the cause of mankind, and it was a source of pleasure to know, that in proportion as they improved its system, so in proportion did they advance the interests of the labourer. A spirit had been kindled in its support, which had extended from one end of the country to the other. Agriculture was no longer looked upon as an art, it now ranked among the sciences; and as agriculture itself became elevated, so would those be who pursued it, both in intelligence and station. He believed the Royal Agricultural Society contemplated by its rules a better system of education for the rising generation in the agricultural interest, and offered rewards in certain cases. He was not aware whether anything of the kind had been thought of in Wilts; but as a stimulus to study, he should be happy to give a prize of 5*l.* next year, to be competed for amongst the sons of members of the society, (being farmers), who should pass the test of examination in the study of Sir J. Herschel's "Natural Philosophy"—a most useful little book."

We having frequently expressed our opinion on the importance of an improved system of elementary education for youths who intend to pursue farming as the business of their lives, and we earnestly hope that the attention of the Royal Agricultural Society will be directed to the subject. It affords us very great pleasure to find that a person, so well qualified to form an opinion on this subject as Mr. Ravenhill, coincides with us,

and we believe, at least so far as has come under our knowledge, we may state, that the prize just offered by Mr. Ravenhill to farmer's sons, for superior knowledge in any department of science, is the first announced at a meeting of an Agricultural Society. We hope to see it speedily followed by a prize for proficiency in the knowledge of agricultural chemistry.—*Mark Lane Express.*

NITRATE OF SODA AS MANURE.

TO THE EDITOR.

SIR,—I believe I am the first individual who used the nitrate of soda as a manure, and have always found it answer beyond expectation. I will not refer to former years, but will answer your correspondent's question as briefly as possible, and probably the experience of the last year will satisfy him. I use it as a top dressing, and applied 1 cwt. to the acre to my wheat, when the plant had suffered much from the wet or the wire-worm. It was surprising to see how soon the wheat recovered its healthy appearance and the wire-worm quite left it, and I should think I have more than an average crop. I have also used it without any manure, upon eight acres of turnips, and they are remarkably fine, better than those where I have used the yard-dung. The nitrate was used broad-cast, and sowed with the seed in a few days afterwards. I used it last year with turnips, and the fly forsook them immediately. The barley is very fine where I used the nitrate. My farm is stony land, with a substratum of chalk, but I believe it succeeds upon all soils. I have generally used it as soon as vegetation begins to feel the influence of the spring. I shall be very happy to give any further information, and remain, Sir, yours truly,

JOHN BURROWS.

Elmhurst, Great Missenden, Bucks, Aug. 28.

NOVEL MODE OF WINNING HAY, as practised by Mr. Jos. Gibson, upon a high-land farm at Dowsgrill, near Greta Bridge, Yorkshire.—Of course, in such situations, the crops are generally lighter than they are upon the lowland farms, where the system might not answer so well. There being no labourers living near to Dowsgrill, Mr. Gibson's practice is, to strew the grass in the usual way, and when it is sufficiently dry for turning, a flock of country or half-bred sheep, are put into the field, and driven slowly along by a shepherd and his dog, making regular turnings, until the whole of the field is traversed over; by this means, if the weather is favourable, he can have his hay ready for putting together on the third day after the cutting of the grass. Such is the case this year. This method may, at first, appear rather ludicrous, but Mr. G. has practised it with success for some seasons; I saw the operation a few days ago, and I can assure your Highland friends in particular, that they would be highly satisfied were they to try the effect. From the sagacity of the dog, which has been accustomed to his work, the business appeared to be effected with the least possible trouble.—*From a Correspondent.*

SHOEING HORSES is rendered needlessly difficult to the farrier, and suffering to the animal, by being performed when the horse is fresh and frisky, instead of being performed when the horse has been tired. A young horse, or any horse difficult to shoe, it is especially necessary, should be sent to the forge immediately after a day's work; not sent, as is too often done, some *leisure morning*.

DRAINAGE OF THE FENS.

INTERESTING EXPERIMENT OF HALL'S
PATENT HYDRAULIC BELT, OR WATER
ELEVATOR.

On Wednesday, Sept. 9, the first public trial of the Patent Hydraulic Belt for the purposes of Fen-Drainage was made at Salter's Lode, near Downham Market.

This extremely important and interesting experiment was witnessed by a great number of professional gentlemen and persons connected with the Fens, and the indisputably successful result excited the highest satisfaction. It was evident to those who looked on this simple, but extraordinary powerful agency, accomplishing effects which have hitherto been performed at a vast expence by an elaborate and by no means perfect machinery, that a new era, about to realize the most sanguine hopes of those by whom the full importance of the object was estimated, was dawning on the prospects of Fen-drainage. From the time when the power of steam was first adapted to the draining of land, but slight advantages have been taken of its introduction beyond the mere rescue of certain districts from the capricious dominion of the winds. Cast-iron scoop-wheels have been partially substituted for the old Dutch wheel, and various other improvements have from time to time been made; but it must be acknowledged, that in the adaptation of steam-power to drainage, very many of its most advantageous effects are left undeveloped, and the greatest amount of benefit, at the least possible expence, still left unsecured. It would be needless to describe the many evils which are inevitably attendant on the system of wind-engines for the purpose of artificial drainage. Setting aside every other, the one great objection must always remain insurmountable. Their powers, however great and effective when in action, are dependent on the changeful and uncertain winds. The farmer, in the midst of his confidence and hopes, with his crops ready for the sickle, may experience sudden and complete ruin, from an unexpected fall of heavy rains, deluging his lands; while his mills, his only hope, stand with their sails unmoved by a breath of wind, and the fruits of the labour and industry of the past year perish on the ground. When most depends on the mills, they are often totally useless. At times when there is most rain there is commonly the least wind. The steam-engine is certain—its giant power untiring. It puts forth its mighty strength whenever it is required, and continues, unceasing, exhaustless, independent of all the obstacles of nature, until its task be finished. The first cost and subsequent expence of the maintenance of one powerful steam-engine is less than the expence of building, repair and attendance on a great number of windmills. Districts which formerly employed five-and-twenty mills, are now effectually drained by one steam-engine. Deeping Fen, near Spalding, containing about 25,000 acres, where there were forty-four mills for lifting the water, is now drained by two engines of sixty and eighty-horse power. March West Fen, comprising about 4,000 acres, is drained by a single engine of forty-horse power. Littleport Fen, near Ely, of 28,000 acres, was formerly imperfectly drained by seventy-five wind engines. "And often has the fen farmer in despair watched their motionless arms, and earnestly hoped a

breeze might spring up to catch their sails, whilst his fair fields gradually disappeared below the rising waters, and the district assumed the appearance of an immense lake." Two steam-engines of thirty and eighty-horse power have now secured the farmer from the irruption of the waters, and rendered him independent of the winds.

With these stupendous results before us, it may be asked, why the adoption of steam-engines is not universal? The expence of the first cost of the erection is not the only answer, but it is the one most commonly and forcibly urged. The introduction of steam must be considered merely as the commencement of improvement. Its inexhaustible powers have hitherto been but rendered subservient to the old and imperfect system of wheel-draining. Great as has been the saving of expenditure, and magnificent as have been the results achieved, it is yet evident that much remains to be done before the great work of drainage can be perfected. The moving power has been brought into operation, but it is still left to adapt to this power a machine which is in all respects efficient, and which possesses the invaluable requisites of cheapness and simplicity. Such a discovery was alone wanting to render the incalculable powers of the steam-engine, as adapted to the drainage of lands, available to their full extent, and thus to realize the fondest anticipations of those persons who have been alive to the immense national advantages which would result from a complete system of drainage.

That such a discovery has been made, the experiment of the application of Hall's Patent Hydraulic Belt, or Water Elevator, on Wednesday last, leaves no doubt on the minds of those who witnessed it. We proceed, therefore, to give our readers as full an account of this most important and interesting trial as is in our power.

Salter's Lode, where the experiment was made, is two miles from Downham Market. An engine has been erected here, and, under the superintendence and at the expense of Thos. Dyson, Esq., the intelligent and able engineer to the Bedford Level Corporation, arrangements were made for adapting the Hydraulic Belt to the engine.

At twelve o'clock a considerable number of persons, between two and three hundred, from the fens, from the metropolis, and from distant parts of the kingdom, had assembled. Among those present we noticed the following gentlemen:—

Charles O'Gorman, Esq., late Her Majesty's Consul General for Mexico; Rev. Mr. Hewlett, of *Hilgay*; Dr. Patterson of *Downham Market*; Wm. Layton, Esq., of *Woodhouse, Ely*; W. Harlock, John Hall, Thomas Archer, W. Moxley, and J. Cropley, Esq., of *Ely*; Edward Hett, G. Wales, and Thomas Dyson, (civil engineer), Esqs., of *Downham Market*; J. Mylnes, Esq., of *Hilgay*; George Press, Esq., of *Dereham*; Frederic Robinson, Esq., of *Southery*; Joseph Bebb, Thomas Hall, and—Bender, Esqs., of *London*; William Thorold, Esq., (civil engineer), of *Norwich*; Messrs. Little, of *Littleport*; Fullerton and Reynolds of *Lynn*; Boyce and Pryor, of *Hilgay*; Brooker, Chapman, Dixon, Hubbard, Johnson, Kemp, Mumford, Palmer, Pocock, Smith, True, B. Ward,—Ward, jun., and Weston, of *Downham Market*; Martin, of *Wainfleet*; Thompson, of *Boston*; Green and Atkinson, of *Wakefield*; Hancock, of *London*; Porter, of *Corentry*; Pratt, of *March*; Compton and Kendle, of *Fordham*; Giblin, of *Swaffham, (Cambs.)*; &c., &c.

Letters were received from several distinguished

individuals, regretting their absence, occasioned by other pressing engagements at different public meetings held that day. The greatest interest in the proceedings was displayed by those present, and the engine was no sooner set in motion than the expressions of wonder and admiration at the extraordinary effects of so apparently simple a machine, were loud and general.

The belt is composed of a woollen material, passing over two cylinders of wood at a certain distance from each other. Any number of belts may be employed, according to the body of water to be raised. By the mere velocity of the belt, a sufficient attraction is produced to raise the water and throw it over the top cylinder. For the purpose of the experiment, the engine was made to employ about three horse power, and with this extent of force more than 800 gallons of water were raised per minute, at a lift of about twelve feet. The superiority of the belt over the ordinary mill was sufficiently attested by the comparison the spectators were enabled to make by the keeper of a wind-engine near setting it in motion. This mill was of twenty-five horse power, and at the time of the commencement of its operations had the advantage of the water running off, by the belt raising the water to its level; yet the greatest lift did not exceed two feet, nevertheless it raised no more water than the belt worked, as before mentioned by the engine, at three horse power. In the opinion of the engineer, the additional outlay of but £75 would serve to raise 2,500 gallons of water per minute, instead of 800 gallons.

The triumphant success which attended this experiment of the Hydraulic Belt, most gratifying as it must have been to the ingenious and enterprising inventor, proved scarcely less so to those among the numerous persons assembled to witness it who were capable of estimating the extent of utility to which it might be made serviceable, and of appreciating the advantageous improvements it is capable of effecting in the great work of fen drainage. That a degree of opposition may be offered to the introduction of this beautiful invention in the fens is what may be expected, from its militating against the class-interests at present connected with the old system; but this opposition will do little against the weight of the influence of the experience of practical benefit, or against the commendation of men of great scientific eminence. The Hydraulic Belt has received the sanction of the most celebrated engineers of the present day. The name of Mr. Dyson alone is sufficient to warrant its entire success; and the confidence which this gentleman expresses in the certainty attending its adoption, inspires us with the hope that the time for a great and most renovating revolution in the drainage of the fen is approaching.

At the close of the experiment a large party of gentlemen interested in the Fen Drainage, and the friends of Mr. Hall, dined together at the Crown Inn, at Downham Market, where an excellent dinner was provided, and the festivities of the evening appropriately concluded a day which we cannot but think pregnant with immense advantages to the nation at large, as well as to those immediately concerned.

The following additional particulars, from a highly intelligent correspondent, we have great pleasure in laying before our readers:—

The great level of the Fens, in consequence of the various rivers that intersect it, is divided into districts, each having its own method of draining.

The principal mode hitherto adopted is the wind-mill, which drives a water-wheel; the diameter of these wheels is governed by the head they have to throw against. It mostly happens that two mills are required, one not being sufficient to throw the water high enough; the heights of the head of water are various, occasioned by the difference in the level of the land, and also the point of discharge. The mode of draining by wind, is admitted on all hands to be the cheapest, but it is very uncertain; because it most frequently happens that, in times of flood, there is little or no wind. The proprietors in Downham Fen last season knew this to their sorrow to be a fact; for the mills were working a fortnight, and instead of the water diminishing, it gained upon the mills nearly two inches. In consequence of this uncertain mode of drainage, the land was never cultivated in the manner in which it should have been; for the deeper you can take off the water in the winter season the better—it being not only better for the crops, but requiring less labour in draining; for the deeper the drains are, the less water is required to be discharged from the land itself. This can be accounted for by the evaporation and soakage that takes place in that particular soil; it makes the land more firm, and also enables the agriculturist to improve the soil by claying, which within these last few years has become very general. The depth of the clay varies very much; in some places it is close to the surface, in others, six feet and upwards. The state of the Fens is very much improved since the opening of the Eau Brink Cut, by lowering the head of water in the rivers, thereby producing greater facility of discharge. The rage for improvement that has taken place in this country for several years past, has not extended in proportion in the fen country, where it is so much required, as in other parts; but latterly the agriculturists have bestowed themselves a little more, and they have been substituting steam power for wind, which has been found to answer perfectly. But in some districts, the fen gentlemen would not be driven from their old plan, but will, there is no doubt, in time, when they find their neighbours in other districts reaping golden harvests at the time their crops have been drowned all the winter. Some districts are situated much better for drainage than others; some only require the water to be lifted three or four feet, whilst others require it to be lifted ten to fourteen feet, thereby requiring more or less power. The head in Downham Fen is at the most twelve feet; a great height to throw, which makes it more expensive in a small fen, it only containing about 1600 acres, and a portion of it bad land. The Hydraulic Belt is more fitted for a district where the head is great. It has also another advantage; it can take the water out to any depth. The trial that was made on the 9th inst., was to shew what advantage was gained between the power and effect, and by the engineers present it was admitted to be manifest; for the engine was only working to about three-horse power, and her whole power is twelve horses. Some malicious individuals, who would be out of office if this engine were to be adopted, set off the wind engine, to shew how *she* could throw out the water. But it must be recollected, that the wind engine is a twenty-five horse power. It was working with no head against her, whilst the Belts were throwing the water ten feet directly upon the tail of the engine; therefore she was almost impelled by the water from the

Belt. It is intended to put on sufficient belts, so that in the wettest season the Fen may be drained. It is calculated that the Belt will discharge about 2,500 gallons per minute, at flood height, and then about eight-horse power will be employed, and four-horse power be left to spare. In order to throw 2,000 gallons per minute, flood height, would require a steam engine with a wheel from twelve to fifteen-horse power. The only doubt entertained with respect to the Belts, is the durability of them; this will be ascertained by working one season. It is said they will last two years; if so they will answer,—but this is to be tried. For single farms, this plan of drainage will be singularly applicable, from the saving in power, and in the construction of the buildings. It is a very difficult thing to persuade the Fen gentlemen to adopt any new contrivance, or to drive them from their old plans; nothing but time will convince them.—*Cambridge Advertiser*.

REPORT ON THE TURNIP CROP ON STRONG LAND;

INCLUDING THE QUALITY OF THE LAND,
THE QUANTITY AND QUALITY OF MA-
NURE APPLIED, AND THE MODE OF
CONSUMING THE TURNIPS.

BY MR. WILLIAM LINTON.

(From the Transactions of the Yorkshire Agricultural Society.)

The cultivation of turnips upon strong land is so difficult, and depends so much upon the seasons, that it is impossible for any one to adopt any mode from which he is not obliged in some seasons to deviate. I here give the general system I adopt, and that which answers my purpose the best.

The land which is the subject of this Report, is very strong and stony, with a good depth of soil, of a fair quality, with a clay bottom, and is under-drained down each furrow.

The land intended to be sown with turnips (which is wheat or oat stubble having been sown after seeds) is ploughed the first time in November, with a very strong plough drawn by four horses, to the depth of 8 and 9 inches. In the spring following, as early as the weather will permit, it is ploughed again; then harrowed down with a pair of iron harrows drawn by 3 horses abreast. After this is done the land is principally tilled and cleaned by an implement which I call a cultivator. It is drawn by 4 horses abreast; both machine and horses are managed by 1 boy, which can effectually break up from 6 to 8 acres per day, and is equal to a ploughing, and in many cases much better. The plough afterwards is seldom used except to keep the lands to their usual position and height. By this means, and the use of a heavy roller to break the clods, I get the land intended for Swedish turnips ready for sowing by the beginning of May, but allow it to lay to rest and gather moisture until the last week in that month. If sown sooner they are subject to mildew, never keep so well, and are not so good in quality.

The plan adopted in sowing is to make ridges so far apart that a cart can span two of them. They are made by a common plough, with a loose mould board fixed to the left side. By this simple

contrivance, we can make a ridge at once, without having to go twice in one place, which would be the case without it; the land being so strong and stony the common double mould board plough cannot be used. I then spread in each row, as equally as possible, about 14 loads of good fold-yard manure to the acre. Then divide the ridges with the plough, the same as in making them; thus covering up the manure, which is done very lightly. After which 3 pounds of seed to the acre is drilled, attaching a light roller to the drill, long enough to pass over two ridges; the one it levels and prepares for the drill, the other covers up the seed after the drill. In droughty weather the above processes are carried on as quickly as possible after each other, so that the moisture is not lost.

The fly being so very destructive upon strong land, I find it necessary to drill not less than three pounds of seed to the acre. Thick sowing encourages the plants when young to grow much more rapidly than if sown thin; and, by drilling with the seed a compost noticed hereafter, the fly has never yet disappointed me of obtaining a good crop. In hoeing I do not attempt singling the plants the first time over, but leave 2 or 3 together, 10 inches apart; afterwards singling them with the hoe and hand, using the scruffler when necessary, just as the weeds may spring up; and if the land becomes too hard through wet and then dry weather following, so that the scruffler cannot work, the plough is used first, drawn by one horse.

The land intended for white turnips is cleaned and cultivated exactly in the same way as that for Swedish, and sown about a month after: but only 12 loads of manure is spread upon the acre; and if sown level, not in ridges, the same quantity of manure is spread upon the land; is beat small with forks, and immediately ploughed in; then harrowed with a pair of light harrows with short teeth, or turned wrong end first, so that they may not drag the manure to the surface. The drill follows, sowing 3 rows at once, 18 inches asunder, 2½ pounds of seed per acre, and as much compost as the drill will lay on. I follow the same plan in hoeing the white turnips as I do the Swedish. The purple-topped Swedish turnips and the white Norfolk are the kinds I generally sow.

Description and Quality of the Manure.—Fold-yard manure is the kind I use which is carted out in February and March, and laid, about 3 feet thick, in a situation most convenient for where it is intended: 6 weeks after, it is turned over, and remains in that state until wanted. The turnips are consumed by my cattle, being given in the fold-yard and houses: the manure is of good quality, as it gets all the dung from the cattle well littered down. After the turnips intended for the cattle are used, I give them from 3 to 4 pounds of linseed-cake per day; which is a further improvement to the manure.

The compost referred to as being drilled along with the seed consists of two-thirds of the best manure (particularly that from the pigs when feeding, which is kept until very rotten), one-third ashes, and one-tenth pigeon-manure;* and, if too wet to pass through the drill, a sufficient quantity of quick lime is thrown amongst it to

* This compost contains the strongest of all animal manures, without doubt accelerates the growth of the plant, but can have no effect whatever in preventing the ravages of the fly.—W. MITES.

cause it to separate. Before the drills were made sufficiently wide I found it necessary to pass it through a wide riddle. A cart-load or two of this compost is drilled upon an acre with the seed, which greatly encourages the plants whilst young, before they have sufficient root to lay hold of anything else, and is a great support when the fly is upon them.

I have used 3 or 4 chaldrons of lime to the acre, in lieu of the manure, but have found most benefit arise from the manure in the succeeding crop of clover-seeds.

The mode of consuming the turnips.—It has been my object for several years to pull my Swedish turnips in November, cutting off the roots and tops, giving the latter to the cattle and ewes; then carting the bottoms together, laying them in a heap or heaps near the fold-yard, about three feet thick, covering them with loose straw about 4 inches thick, so as to admit of wet, and in part keep out the frost, as well as the sun and drying winds in the spring. In this way I regularly preserve my Swedish turnips, and can have them in as good condition in May as I could wish for—much more so than in any other way I ever tried or heard of. After the tops are all consumed I then begin to use my white turnips; after them the Swedish, which are given to my cows, fat beasts, and ewes when lambing. If I pull up a quantity of white turnips in November I consume the tops immediately, keeping the bottoms in the shade; but consider two months long enough to pull them before they are wanted. In February I pull off what remains upon my strong land, and preserve them the same as the Swedish, in a sward-field, for my sheep until later in the spring. By this they are prevented growing, and are much better food than those which are allowed to stand until April. I also get my sheep off the light land on which I eat the turnips much sooner, and am not thrown back in getting the land sown.

General Remarks.—I always consider it bad policy to grow turnips upon strong land with an idea of eating them upon it; or to pull and cart them off in wet weather: and consuming them upon good sward with cattle not only robs the fold-yard manure in quality, but also in quantity, and does no good to the sward the following summer. Since I began to give my cattle their turnips in the fold-yard and houses, my sward will graze one-third more. Where the sward is light land, dry, and of a tough nature, treading will be beneficial to it; but we are speaking of strong land.

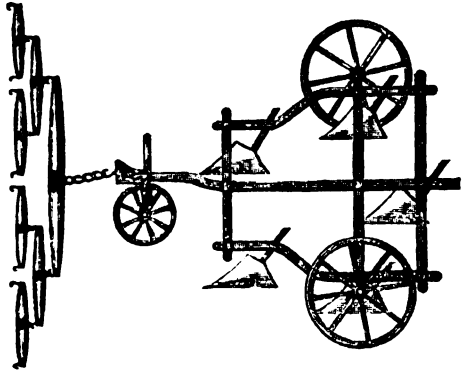
Much has been said respecting the best way of preserving Swedish turnips; and it appears that the plan of planting or paving them upon sward is one much practised, but does not give satisfaction, which I am not surprised at. I object to it for the following reasons:—first, the tops are destroyed, which are valuable if cut off in November. I consider them worth double the expense of pulling, which costs from 7s. to 9s. per acre. Secondly, they are exposed to all the weather during winter, and when wanted are often covered up with snow, and have all to be cleansed as when growing in the field, as well as to be given to the cattle in a frozen state, which is bad management. Thirdly, the trouble and expense in paving them. By the plan adopted in this report the tops are turned to an account, the bottoms are preserved in as good condition as possible, and are always ready for use without further trouble or cost. If they are put into a house, or laid too thick for a length of time, they heat, and will become mouldy, dry, and soft.

They must be kept cool and moist. Care must be taken that they do not get much frozen, after they are cut off, before carting away out of the field, and that the bulb is not cut into, either at the top or bottom.

Manure is generally considered best when rotten; in this opinion I do not agree: if it be short enough so that the plough can cover it up with mould, it will answer as well for turnips upon strong land, if in ridges, as if it were ever so much reduced; and much better for the succeeding crop of corn. I have used bones, but did not find them to answer equally well in proportion with the cost on my strong land. The compost drilled, as described, is an excellent substitute, and can be procured at one-tenth of the cost; and, what is of the first consequence to a farmer, he has it within himself, saving both the cost and the cartage of bones, generally bought at a distance.

WILLIAM HINTON.

Sheriff: Hutton, near York.



The Cultivator.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I observe in your last number, an enquiry, by a "Lancashire Subscriber," as to the best mode of marking sacks. I never found an effectual recipe; my neighbours and brother corn chandlers are always complaining at the continual loss of sacks, marked ever so well, my firm belief is, that mark them with whatever consistence you may, that the solution which stolen sacks are steeped in, to destroy the marks before they are sent and sold to the paper makers, will frustrate the best preparations for marking sacks.

ON THE USE OF SALT AS A MANURE, BY H. D.—The method that I have used salt for manure, is by spreading it in the farm yards, and in the dung-mixens, it is there well mixed, and goes out regularly with the dung on the ground. I have found great benefit in the crops by this simple and convenient mode of applying it. It is also a great benefit in the manure retaining its moisture, the same method I use *Sea Weed*.

A SUSSEX AGRICULTURIST.

REMARKABLE SCOTCH THISTLE.—There is at present growing in the garden of Miss Sharp, Crieff, a Scotch thistle, measuring eight feet six inches in height, and twenty-four feet in circumference. It grows under a tree, and it was lately observed to have grown at the rate of several inches a day.

AGRICULTURAL MEETINGS.

The march of improvement in every department of agriculture is no where more clearly demonstrated than in the proceedings at and general character of our agricultural meetings now become too numerous even to be hastily read without sacrificing a larger portion of time than ordinary avocations will permit. To attempt even an abridged account of them in a Journal, where business matters have a paramount claim, would be vain; in very many cases therefore, we must be content, as we trust our readers will, with a cursory glance at them, and occasional extracts of those parts of the proceedings which contain the most useful information. We cannot, however, refrain from giving at length a report of the proceedings of the "Northamptonshire Farming and Grazing Society," the exhibition of cattle at which meeting takes place on Earl Spencer's farm at Chapel Brampton, not only because this Society enjoys the special advantage of the support of Earl Spencer, who, as was well observed by the Chairman at the dinner, is now "generally regarded throughout the country as the *great patron of British agriculture*," but also because it is the 21st anniversary of the presidency over the Society of that veteran agriculturist, Mr. Hillyard. We trust he may long be spared to fill an office, the duties of which we are convinced he is most anxious to perform in the manner best calculated to promote the interests of the Society. The Society has obtained a signal advantage in the addition to its list of members, of a nobleman whose name commands the respect of the British farmer, in consequence of the benefits conferred on our national agriculture by his ancestor, and who we know is fully prepared to prove himself a worthy descendant of the Duke of Bedford. His Grace the Duke of Bedford was present at the meeting, and expressed himself proud of being admitted a member of the Society, and offered a premium, the disposal of which he placed in the hands of Earl Spencer. Mr. Benzy showed that he fully entered into the spirit of Earl Spencer's donation of a prize of fifty sovereigns for a short-horned bull, to be used in the county, by having supplied one which carried off the prize. We have now before us reports of several Agricultural meetings. We shall first advert to the meeting of the "Netherby Agricultural Society." Most of our readers are aware that this meeting was established by Sir James Graham for the tenantry on his own estates, and although many strangers attend the meeting, still the competition for prizes is confined to the tenantry and cottagers upon the estate. The proceedings at this meeting are always distinguished by that kindness of feeling, which it is so delightful to witness as existing between landlord and tenant, when based upon a sound principle,—not that servile attachment which is extracted by fear, from a knowledge of the power of the landlord over the tenant, and of his disposition to exercise that power, but that respect and attachment which will always be kindled in the bosom of the British tenant farmer, when he is treated as an independent man, as one who being prepared to employ his talents and his capital in the cultivation of the soil, confers as

great an obligation upon the owner of it in so doing, as does the landlord in contracting with him for the occupation of his land. Sir James Graham is himself a practical farmer, and, is therefore, better fitted to appreciate the real position of his tenantry. As business of any kind is always more satisfactorily arranged with men of business habits, so will the tenantry of a man practically acquainted with farming, except under peculiar circumstances, experience better treatment and greater consideration than at the hands of one who is perfectly unacquainted with the practical operations of husbandry. In his address at this anniversary meeting, Sir J. Graham generally communicates some useful practical information, the result of his own experience and observation. Last year his remarks upon draining would be found of value, not only to his own tenantry, but to all others engaged in that most important operation. His remarks made at the late meeting upon the cattle best adapted to that locality are well deserving of attention in other parts of the country:—

"I cannot, in passing, avoid expressing to the gentlemen present, the great pleasure I feel at witnessing the visible improvement in the Galloway stock exhibited in this year's show. I have often expressed my conviction that, except upon the best land and in the finest situations, Galloway stock will, in the long run, be found to be best suited to this estate and this climate. I was once very much attached to short-horns, and had a large number of them; but, on experiment, I am persuaded that, although in my own hands they might be profitable and useful, for the great body of tenantry and occupiers in this neighbourhood Galloway stock is preferable. I therefore put down my short-horns and bestowed much trouble in obtaining the best and purest Galloway blood, which I am happy to find is now generally diffused throughout this neighbourhood. I particularly rejoice in observing the progressive improvement in this breed on the estate, and I think I never saw so many good Galloways on any former occasion. I am persuaded they will be found to be a profitable stock. I fed four Galloway bullocks last year, which I sold before they reached four years old, for a sum considerably above a hundred pounds. One of them fetched 30*l*. I have also had tempting offers for Galloway cows within the last three or four months. I think the conviction is spreading that in a wet climate, and exposed and ungenial situations, they will prove the most profitable stock. Recollect, I do not wish to discourage the breed of short-horns on the best land; on the contrary I think that, under those circumstances, they may be made profitable, but I repeat that on higher land, speaking generally, Galloway stock will be found to be best suited to this climate and neighbourhood."

Mr. Teather when returning thanks on his health being drank, observed—

"When he first knew the Netherby estate the now fertile lands on the banks of the Esk and the Lyne were little better than a waste, with here and there huts composed of clay walls and covered with straw. He had seen the waste converted into excellent land, and, as if by magic, the mud huts were supplanted by good stone buildings, not only for the occupiers, but the cattle, and every thing requisite for the cultivation of the farms. Some of the buildings were, indeed, more like mansions than farm houses. He had also witnessed the greatest improvements from drainage. At the time when he first became acquainted with the estate there was scarcely an under-drain upon it, and the land was so saturated with water that it was impossible for the cultivator to get the seed into the ground at the proper season, and, consequently, the harvest was unnecessarily late. Since it had been

drained the seed was got in early in the spring, and the harvest was now, generally speaking, a month earlier than it used to be." (*Hear, hear.*)

Sir J. Graham in proposing the health of his agent, Mr. Yule, passed a well merited eulogium on that gentleman's conduct. Mr. Yule returned thanks, and in the course of his remarks said—

"It was of the first importance to obtain good seed for the incoming crop, and he therefore proposed that there should be a show of seed at Longtown, and that the seed should be exhibited in the bulk." (*Applause.*)

The proposition met with general assent, and it was understood that the necessary arrangements would be made for carrying it into effect.

Thus another step is taken to render this Society still more useful.

The next meeting which comes under our notice, is that of the "Hexham Agricultural Society," over which J. C. Jobling, Esq., of Newton Hall, presided; and we regret that our limits will not enable us to give a full report of the proceedings. This Society was founded by Mr. Grey, of Dilston, whose zeal for the cause of agriculture, is well known and as was well observed by the chairman—

"Whose great practical knowledge is equalled only by the urbanity and ability with which he is ever ready to impart that knowledge."

The chairman gave the following detailed statement of his experiments in draining, and sub-soiling:—

"He first commenced with seven acres of land, which would be dear to rent at 5s. the acre, and which was a strong yellow clay; it was fallow in 1836, and in 1837 produced 72 bolls of oats at 5s. 6d., which amounted to 19l. 16s.; not being satisfied the second year with the condition of the land, he put in 249 roods of draining, which cost, including stone, which was principally in the field, 10l. 12s. 10d., but in consequence of the low situation of the field he was obliged to make a large drain to take away the water, which with the service drains, cost 23l. 5s. 10d., making a total of 38l. 16s. 8d.; last year the seven acres produced 88 bolls of wheat under the same treatment, which at 14s. 6d. the boll, came to 63l. 16s., leaving, after deducting the 38l. 16s. 8d. outlay, charging everything, a balance in favour of last year's crop over that of 1837. In 1836 an eight acre field, he would observe, only produced 66 bolls of wheat, since which it had been drained at a cost of 34l. 1s., and last year it produced 88 bolls; it was also a very late field, and last year was the first that was ripe, and the crop was sold at 17s. 6d. the boll, producing 18l. 15s. over the former crop, or more than one half of the cost of draining, &c. The last field he would mention was one of clay, with moist soil, on which it occurred to him that he might have a crop of turnips, and in which he was very much opposed. The cost of ploughing and draining this field was 32l. 6d. 8d., and the additional expenditure necessary for a turnip crop, including seed, extra manure, tithe, &c., was 10l. 0s. 10d., making 42l. 7s. 6d., and the produce of the crop was sold at 6l. per acre, or 30l. leaving a balance of 12l. 7s. 6d. against the field. This year the field was in mashin, and its value would not leave the field in more debt than 3l. 13s. 4d.

The following items will give a clear idea of Mr. Jobling's success in sub-soiling and draining. They have reference to one field only which is of very strong clay with little or no soil.

	£.	s.	d.
Four horses, 14s, per acre	4	18	0
	£.	s.	d.
249 roods of furrow drains, at 8d.			
per rood	8	6	0
62 loads of stones, at 6d. per load..	1	5	10
Leading ditto, 3 days, at 7s. per day	1	1	0
	10	12	10

Brought forward	£10	12	10
90 roods of large drains, at 1s. 9d.			
per rood..	7	17	3
38 ditto, at 2s. 4d.	4	6	8
6 ditto, at 2s. 10d.	0	17	0
25 ditto, at 1s. 4d.	1	13	4
227 fother of stone, at 5d. per			
fother	4	14	7
Leading ditto, 11 days, at 7s. per			
day	3	17	0
	23	5	10

Expenditure on sub-soiling and draining .. 31 16 8

Crop of oats in 1837, 72 bolls, at (say) 5s.			
6d. per boll	19	16	0
Crop of wheat in 1839, 88 bolls, at (say) 14s.			
6d. per boll	63	16	9

Difference in favour of 1839, after sub-soiling, &c. 44 0 0

The following observations of Mr. Grey are valuable, more especially as the use of nitrate of soda as manure is extending itself daily:—

"With respect to improving the soil, he had tried the nitrate of soda upon a piece of grass land, and he found that on the parts to which he had applied the nitrate of soda the grass was outgrowing that on the other soil at a rapid pace. In one hundred and twelve square yards, without the application of the nitrate, he had nine stone seven pounds weight of hay, whilst in the same space, with the application, he had fourteen stone four pounds, which gave about a ton and a half more to the acre than usual, and at an outlay of only twenty-two shillings. On the corn land he had been more successful with the maslin than he had been with the barley; he did not think, however, that the application would be so successful in wheat as it had proved in grass. He had also applied gypsum at the rate of twelve bushels to an acre, but it was not so effective as the nitrate of soda. He then tried gypsum and the nitrate of soda combined, but that was not so productive as the nitrate of soda alone, and that convinced him that they could not attend too closely to the suggestion thrown out by Mr. Monck, of paying particular attention to the application of scientific mixtures to the soil." (*Applause.*)

Another important agricultural meeting, that of the "East Suffolk Agricultural Association," was held at Wickham market on Thursday last. Earl Stradbroke is president of this Society, but was unfortunately prevented from attending by indisposition, and the chair was taken by Lord Huntingfield. The "Suffolk Chronicle" says:—

"The shew in the field, though containing many good specimens of beasts and sheep, was not, we think, so great in this department of stock as we have seen it. Its superiority consisted in the horse stock, of which there never was a larger or better display under any circumstances made in the County of Suffolk. This character may indeed be given, whether as respects animals of the draft or riding kind. We particularize the following, as being highly approved animals, and as exhibiting those qualifications which have made the breed of Suffolk horses renowned through the three kingdoms. Among the entire animals for riding purposes we noticed Knowsley, a 5 year old, belonging to Mr. Freeman, Heulham, between 15 and 16 hands high; Young Watton, belonging to Mr. Easter, Benhall, 3 years old, a fine strong colt, of very symmetrical shape, and handsome head; a 4 year old horse, belonging to Mr. Morgan, Bramford; and an iron-grey colt by Whisker, 2 years old, belonging to Captain Broke, Ufford. Among the Cart Stallions—a fine animal belonging to Mr. John Gobbett, Iken Hall, 3 years old, named Captain, a Suffolk sorrel mixed with white; a fine stallion called Briton, 3 years old, bred by Mr. Plant, Farnham; Blake, a stallion, 3 years old, bred by Captain Broke, Ufford; Briton, 3 years old, belonging to Mr. Rist, Foxhall; Boxer, 5

years old, belonging to Mr. Catlin, Chillesford (shewn last year); a fine animal belonging to Mr. T. Crisp, Gedgrave, 5 years old; Boxer, 5 years old, belonging to Mr. Worledge, Creeting; Briton, 7 years old, belonging to Mr. Keer, Reydon; Boxer, 5 years old, belonging to Mr. R. Easter, Benhall; Captain, 5 years old, belonging to Mr. T. Crisp, Gedgrave Hall. The mares and foals were also very good, as also the geldings. The entire horses, however, were the pride of the field. We noticed also a Suffolk cart filly, bred by Mr. Garrard, Laxfield, of very superior character, as also was a similar animal bred by Mr. T. N. Catlin. A cart foal bred by Mr. James Wells, Dennington, was also much admired. Mr. Kersey, Framsdon Hall, shewed several excellent Suffolk horses. Among the bullocks we noticed some very fine animals. A short-horn by Lord Huntingfield, 15 months old; a 2 year old short-horn, by Mr. T. Crisp, Gedgrave; a 3 year old bull, by Mr. Worledge, Creeting; two Suffolk bulls, 2 years old, belonging to Mr. Crisp, Chillesford; Lord Henniker also showed a good bull. The Suffolk cows shewn by Mr. James Reid, Laxfield, were much admired by the farmers on the ground. There were 25 Suffolk cows shewn, all of superior character, including seven competitors for Lord Henniker's cup in this description of animal. Mr. Blofield, of Monewden; Mr. Turner, Kettleburgh; and J. Moseley, Esq., also shewed good cows of the same kind. A very fine hog was also exhibited by Mr. Hanbury, Hacheston. Among the sheep were several very fine down tups, shewn by Mr. T. Crisp; some fine Leicester shearing ewes, exhibited by Mr. Nathan Crisp."

The chairman expressed in glowing terms the pride he felt at the high position in which the County of Suffolk stood, both as regards its cattle and farming, and wound up his observations by the following pithy remark:—

"But such was the general good character of the county, that it was considered superior, not only in the breed of cattle, but also in general farming. The Suffolk farmers were considered the best and neatest in England. Yes, this was the character universally assigned to them."

We do not know how some other counties in England may receive these remarks, challenges having lately been very rife, we should like to see a challenge between the County of Suffolk and some other well cultivated county.

Lord Henniker in returning thanks, as one of the members of the county, said:—

"He would just refer to that portion of agriculture which might be termed the chemical part, and lead them back to the observations made at the Cambridge meeting by Professor Buckland on this point. What he particularly wished to observe, and to which the observations of the Professor were directed among other matters treating on the same subject was, that there existed an office in London where soils were analyzed, and through which analysis the agriculturist could be made acquainted with the certain qualifications of the soil which he tilled." (*Hear, hear.*)

In reference to this remark of his lordship we are enabled to state, that there is a chemical laboratory attached to the Polytechnic Institution, being the back part of the premises occupied by the Royal Agricultural Society, in Cavendish-square, where any soil will be analyzed at a cost of thirty shillings for each analysis. So far the object desired by his lordship may readily be attained.

We were much gratified by the following commendation of Farmer's Club, pronounced by R. N. Shawe, Esq.:—

"These societies had also been instrumental in originating those useful institutions now springing up called Farmer's Clubs. (*Hear, hear.*) They were of great

benefit to the farmer, inasmuch as no man required to be brought more closely in connection with his fellow men, and yet the occupation of the farmer, in a manner isolating him from his friends, rendered communication difficult. Farmer's Clubs, however, remedied this evil, and were the means not only of bringing men together, but also of assisting materially the interests of that employments in which their members engaged." (*Hear, hear.*)

It is highly satisfactory to see that the attention of this association is not confined to the breeding of cattle only, encouragement to improve the cultivation of the soil is held out, as will be seen by the following awards:—

"To the tenant (a member of this association) who shall have spade-drained from the Annual Meeting, in September, 1839, to the 1st August, 1840, the greatest number of rods (not less than 4,000), to be adjudged at the discretion of the Committee, a premium of 4*l.* This was awarded to Mr. Robert Foulsham, Darsham, for having drained on his farm, containing 235 acres—47 acres, with 7,243 rods of five and a half yards each, and filling the same with whins, &c., in one year.

"To the member of this association who has used the subsoil plough to the greatest extent in proportion to his occupation of arable land, within the year ending 1st August, 1840, not less than ten acres to have been so ploughed—at the discretion of the Committee a premium of 4*l.* This premium was awarded to Mr. Lewis O. Cottingham, Reydon, by Southwold, for having subsoil ploughed 89*ac.* 1*in.* 17*ro.* on his farm of 412*ac.* 1*in.* 8*ro.* between Aug. 1, 1839, and Aug. 1, 1840."

—*Mark Lane Express.*

NITRATE OF SODA.

SIR,—In answer to O. D., Cheshire, I would, in the first place, say that nitrate of soda will not exhaust the soil, be it siliceous, a stiff loam, or any other soil. I do not say that the soil is of no consequence in the application of nitre, and that the benefit will be the same on all soils. No rule can possibly be laid down, owing to the diversity of earths. The farmer must find out by experience where the dressing will do most good, and whether the crop will be benefitted enough to pay for the outlay.

All nitre, whether nitrate of soda, potash, or lime, contains a great quantity of oxygen, which goes to the nourishment of the plant and increases its productiveness. Nitre cannot be serviceable only to one crop; a minor part may enter into and unite with the soil, but that is not the fertilizing part; the conclusion we are to arrive at, then, is that repeated applications will benefit succeeding crops. One more word respecting soils: a farmer ought, in the present advanced state of agriculture, to be able to analyze the different soils that he has to cultivate, and then he would be able to judge what sort of manure or what top-dressing would suit best—all we want is pabulum for the plant.

SENEX.

Ipswich, Sept. 10th.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In the *Mark Lane Express* of the 21th ult., "An Irishman" wishes to be informed, what is in and in breeding? The question is a very simple one, and put with seeming sincerity.

I consider judicious in and in breeding, to be the first establishing a breed of animals with as few faults as possible; then from that time excluding all strange blood, and with a watchful eye, and on scientific principles, keeping for breeders such only, males and females, as have arrived nearest to perfection; caring not

a straw in what degree of relationship they may chance to be to each other, or as is so much better expressed by Sir John Sinclair, who says, "When a race of animals have possessed, in a great degree, through several generations, the properties which it is our object to obtain, their progeny are said to be well-bred, and their stock may be relied on; and it cannot be doubted that any breed may be improved in the same manner."

And should "Irishman" desire an illustration, I beg to refer him to that eminent sheep-breeder, Mr. V. Barford, of Foscoate, near Towcester, Northamptonshire, who has strictly in-and-in-bred, entirely from his own flock, sire and dam, from the nearest affinities, and without an interchange of male or female from any other flock for the last thirty years; and now his sheep are fine in wool, with aptitude to fatten; superior mutton and small in the bone, handsome in symmetry and hardy in constitution.

I am, Sir, yours, &c.,

A LOVER OF IMPROVEMENT.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Whatever tends to improvement has always been acknowledged worthy of record, and as this principle has hitherto prevailed in general adoption in the arts, mechanics, and other branches of national economy, allow me to call your attention to the merits of two individuals whose occupations are of a more retired, but not a whit the less important nature; in short, they are of that useful class which modern phraseology denominates agriculturists, or in plain old English language, farmers.

I know their modesty will shrink from this statement, but I hold, Sir, that he who does well deserves well, and upon this principle I will not apologize for troubling you with a statement, if not important, at least interesting.

The first of these is a Mr. Thomas Pickford, who a few years back took a farm at Cheadle Heath, in the parish of and near the village of Cheadle. The farm was, when he entered upon it, in a most miserable plight; the land almost exhausted, the fences down, and in short anything but tempting. Although Mr. P. was a young man just married, and entering upon life, this dreary prospect nothing daunted him: on the contrary, he set about his work with an earnest determination, and improvement followed his steps. He was to be seen late and early hard at work, for he is one of those who say to their labourers come, and not go. His carts were to be observed daily wending their way to the farm laden with manure from the neighbouring town of Stockport, himself invariably one of the drivers, having been most active in the labour of loading; and the consequence appears on looking at his fields, the dreary appearance of brown, and sour looking vegetation has vanished, and given way to the smiling verdure of the most approved cultivation. When he first commenced operations his barn and hay lofts were not half filled with crops, and now they are crammed with produce, and around them stand as sentinels goodly stacks of grain and fodder, which present the picture of plenty (a prototype of the farmer's own contented face) to all who view them. Pomona presides over his orchard, and Ceres over his crops, whilst his dairy overflows with lacteous beverage and unctuous butter. His fences are barriers well maintained, and smiling peace with bounteous plenty meet the spectator on every hand. This, Sir, has all been done in a very few years, and the means are simple; he is a practical farmer, he is a worker, his wife is

a worker, and all his servants, male and female, are and must also be workers too. Luxury gives way to plenty, and dainty bits to nourishing food of a substantial nature. He sees that his work is done, and himself works as hard as any man he has; his wife is a worker as well; he is training up his children to industrious habits, and he pays his rent, his tithes, his rates and debts with cheerfulness; thanks God for his mercies, goes to bed early and rises early, and contented follows his employ briskly; never interferes with politics or religious squabbles, nor murmurs against his landlord, and he has met and will meet with his reward. May he continue to enjoy that prosperity and happiness he so richly merits!

Now, Sir, for my next instance of what may be done by industry and perseverance. My hero is Mr. Francis Taylor, whose first occupation was the humble driver of a waggon for the Northern Mill. Frank was as frank as his name, he followed his team and whistled away care, although carefully bearing in mind one object, which was to raise himself in the world, and he has been successful. His next employment was that of watchman over the print works and bleach crofts of Thos. Marsland, Esq., M.P.; his economy soon enabled the watchman to show the fruits of his watchfulness by taking a small farm under Mr. Marsland, and an additional one some time after from a Mr. Campbell, at Cheadle, two miles from the other, and he still holds them both, the condition of which is beautiful. His industry is proverbial: he constantly walks from one to the other several times a day, or is working at one or the other of them. He has them both personally to manage, and, Sir, he does manage them. There is a sort of friendly contest between him and his friend Pickford, which produces the best crops, and presents the best appearance on their land; still they envy not each other's prosperity; consult each other and advise on what is best, and are ready to help each other in time of need.

Such tenants as these are a credit to any landlord, and I trust they will ever experience that assistance from their's which they so well deserve. Their motto seems to be "waste not want not," and they act as though that school-boy copy, "idleness is the root of all evil," were constantly in mind.

I hope you will pardon the length of this letter. I would plead in excuse that you have a correspondent in a neighbouring township, who often explains his cultivation in your useful journal, and he is a good farmer—a gentleman farmer worth his thousands a year. Such men as I write of cannot be expected to try the various plans which he adopts, for lack of means; they have rent to pay, he has none; they cannot run to the Bank to cover their land for a crop—their only bank is the land they cultivate, and the bank of industry; and permit me to say they are as worthy the annals of fame as any gentleman farming his own land, albeit the improvements he has made may have cost him thousands; for, he may not have his rent raised, or be forced to quit on a slight disagreement with the landlord—a consummation I hope my two friends, the farmers I have spoken of, may never have to complain of. They would be a credit to any estate in England.

I am, Sir, yours obediently,

A FRIEND TO IMPROVEMENT.

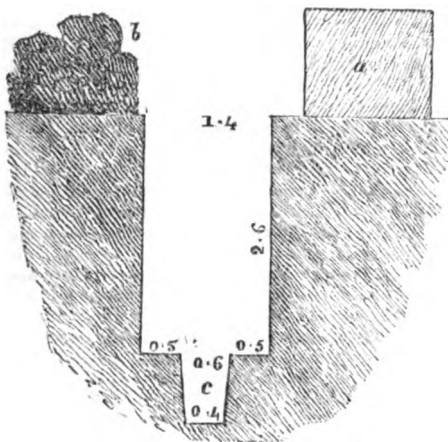
P.S.—I have another or two instances of good management to record, which, if this meets with your approval, shall be duly forwarded.

ON RECLAIMING BOG.

SIR,—Your correspondent, "A Lancashire Agriculturist," recommends a "Farmer north of the Tweed" to visit Chat Moss and inspect the reclaimed farms of Mr. Baines, M.P., and others there. I have visited them and join in the recommendation; for, most certainly, they are strong illustrations of what may be done with the wildest and most sterile bogs. Chat Moss was such; and, indeed, a portion of it remains so still. It may be acceptable to "A Farmer north of the Tweed" to have a general outline of the method pursued in draining this moss, but prior to describing it, it would be well to state that Chat Moss is a deep bog, from 10 to 30 feet deep. There is a wide difference, both in the chemical and mechanical structure of deep "red bog" (as we term such as Chat Moss here,) and shallow "black bog;" and the method pursued, and expense of draining these two descriptions of bog, vary very much.

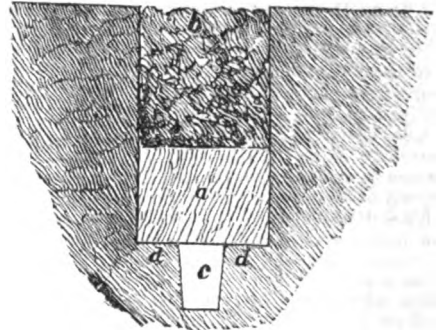
The first operation in draining the farm held by Mr. Baines, and that held by Messrs. Evans, was to cut open drains: this was done gradually (a foot to 18 inches deep at a time) it being found when the whole depth of the drain was made at one operation the pressure of the water caused it to collapse, and, consequently they had to be remade. The usual size of the open drains is 4 feet 6 inches deep, 4 feet 6 inches wide at top, and 18 inches wide at bottom, they are made parallel to each other; I do not recollect at what distance, but I think about 20 perches.

Cross drains are made at intervals. When these drains have drawn off so much water as to cause the moss to consolidate in some degree (in which consolidation the surface sinks considerably) they are again gone over and made of the required dimensions. The covered drains are then made, and like the open drains, are done gradually. The following is the course pursued:—A narrow trench, just sufficient for a man to work in, is cut to the depth of 2 feet 6 inches; a shoulder is then left on each side, as in fig. 1, below which a narrow spit of turf is taken out (see drawing).



There are three operations, at intervals, in opening this drain, as in the open ones. First a deep spit (the top sod) is taken off, and laid carefully on the bank, as *a*. The whole of the field, or a number of fields is, or are, gone over thus; after which a second or third spit is taken off down to the shoulder, and laid upon the opposite bank, as *b*: the third operation is cutting the narrow spit, *c*, which is to serve for the drain, throwing the stuff out on the side *b*. When

all these operations are gone through, the top sod (*a*), put aside for the purpose, is carefully laid with the heathy side downwards upon the shoulders *d d*, as shown in fig. 2, and the other bog stuff *b*, fig. 1, thrown over it, as *b*, fig. 2.



These drains are made a perch asunder, at which distance there requires half a mile to each acre.* The acreable cost for the open drains is about 10s. and for the covered drains 35s., making a total per acre of 45s.

It was supposed these drains were sufficiently near to each other to do the business of draining effectually, but Mr. Baines has found it necessary to increase the number of covered drains; and he now is, or lately was, making the covered drains more numerous.

Experience has also shown that the drains were not sufficiently deep, for from the subsidence of the bog, from drainage and croppage, the drains now are not so deep as they were originally made; and it is the opinion, I understand, of Mr. Baines, and others, that the drains would have been better had they been made somewhat, deeper—not better as drains, but less liable to be injured by the treading of cattle.

The subject of bog reclamation in Ireland is attracting much attention, but as far as I know, I am not aware of its having yet paid any one, for the expense is very heavy. I have heard that some experiments have been lately made to drain bog by machinery, by Mr. Rigg, an English engineer, with considerable success, and great reduction in the expense. Perhaps some of your agricultural readers may know something of these experiments, and will favour the public by giving some information on the subject; or Mr. Rigg himself may do so if this meets his eye. I do not know the locality of the experiments.

The possibility of converting bog into a rich and fertile soil is proved beyond doubt, but the expense has been hitherto too great to induce proprietors to undertake its cultivation. Perhaps some of your correspondents may be able to give some hints on the subject, which I, for one, should be glad to learn.

I fear the expense of using timber as soling for tiles, together with the expense of tiles, must be too great to pay; except localities where land rents very high (as town parks). I should be happy to learn from your correspondent "An Irishman" what the expense is—length of drains in an acre—nature of bog—locality, with any other particulars it may be his convenience to give.

I am, Sir, your very obedient servant,
Dublin, Aug. 30, 1810. W. M.

* There are tools made on purpose for several of these operations.

DICTIONARY OF TERMS

USED IN AGRICULTURE AND ITS KINDRED SCIENCES.

ABRADING. This is a term applied by some agricultural writers to the crumbling down of earth from the effects of frost. This process is seen most on fall ploughed lands, and is an efficient agent in ameliorating and rendering fit for cultivation heavy or clay soils.

ABRASION. The wearing away, by running water, of earths, rocks, &c., the banks, or the bottom of streams, and the result of which is the deposit of alluvium.

ABSORPTION. The process by which plants and animals are nourished is called absorption. In most plants this office is performed by the roots, and it is through the vessels called spongioles, with which the roots are terminated, that absorption takes place. In aquatic plants, the water which affords the nourishment is absorbed with facility from every part of their surface. By causing the roots to imbibe coloured liquid, the general course of the sap may be traced with considerable accuracy.

ACIDS. Bodies that have usually a sour taste, and corrosive qualities. Some acids appear only in a fluid state, gaseous as carbonic acid, or liquid as sulphuric acid; others are crystallized, as the boric, benzoic, &c. Of the acids, the only one that has much influence on vegetation is the carbonic.

ACCLIMATING. Plants are endowed with a power of gradually accommodating themselves to the temperature or climate in which they are placed, unless the change is at once so great as to suspend their vital functions altogether. This process is called acclimating. Plants will bear removal better from a warm climate to one of lower temperature, than from a cold to a warm one. As instances in plants, we may mention the potato, the bean, the melon; and among fruits, the peach and apricot. The cucumber affords an instance of the effect of acclimation. It is grown in the open air at Cairo and at Petersburg, at Carracas and at Quebec.

AERATION. An important change effected on the sap of plants by the action of light. It consists in the decomposition of carbonic acid gas, which is either brought to the leaves of plants by the sap, or absorbed directly from the atmosphere. The substance of all plants is mostly carbon, and as carbon in its common state, however minutely divided, is never taken up by the sap of plants, this most essential ingredient is obtained in the form of the carbonic gas, from which the oxygen is separated by the leaves under the action of light, leaving the carbon ready for assimilation or conversion into vegetable fibre. That this process is performed by the green substance of the leaves or stem is evident from the fact that if a leaf is bruised or its vitality destroyed its substance is no longer capable of decomposing carbonic gas in the light, or absorbing oxygen in the dark. The necessity of this aeration of sap for the purpose of ripening fruit or maturing vegetation may be seen in some fruit trees, the plum for instance, in which an excessive quantity of fruit causes a premature fall of the leaves, after which, owing to this loss of the organs of aeration, the fruit never ripens, but remains immature and worthless. The necessity of the leaves for aeration, or perfecting the juices of plants, shows the

absurdity of plucking or injuring the leaves of any plant before it is ripe, topping corn, &c., under the idea of hastening maturity or increasing the product. Attempts to improve on nature must be failures.

AFTER-GRASS. The grass grown on meadows after they are mown. The usual practice among farmers is to feed this off by cattle or sheep, and in some cases so closely as to nearly destroy the roots of the grass. Unless the turf is close, and the meadow rich, it is better not to feed at all, or very lightly. For cropping after-grass, sheep are better than cattle, since, though their bite may be closer, they do not injure the roots with their feet, like the former. If mown a second time for rowen, it is called—

AFTER-MATH. On rich meadows, or where can be had in abundance for top-dressing, a second mowing may be justifiable, and the grass so cut, if well cured, is much relished, and eaten with avidity by ewes, calves, and other animals that are apt to become poor under ordinary management. The practice of the second mowing, however, like after feeding, is not to be recommended on the whole; experience proving that the injury grass roots always receive from mowing is increased by the second cutting. Necessity alone can render after feeding or mowing justifiable or proper.

AGRICULTURE. In the most extended use of this term, it is made to embrace all the operations made use of to obtain food for man, whether from the field, the orchard, or the garden. In its proper and limited sense it means the cultivation of the soil, which is the great source of wealth. The first want of man was food; the place to obtain it was the earth; hence the origin of agriculture; and in proportion to his wants and the ease or the difficulty with which they can be supplied is his progress in agriculture. Where the wants of man are supplied by the spontaneous productions of the earth, as in parts of Africa, or in the South Sea Islands; or where the inhabitants expect no food from the earth, as among the Esquimaux or Somofedes, there agriculture is unknown. It is only where exertion is necessary to procure food from the earth, that wants abound, that wealth is increased, and that agriculture becomes a science, and assumes its proper place as the basis and precursor of civilization, society, and order. All history proves that such is the fact. The creation of wealth belongs to agriculture. Food must be had, and the value of every other article depends directly or remotely on the amount of food it will procure. The skill of the mechanic may improve, the enterprise of the merchant may exchange, but the origin belongs to the earth, and the cost and the profit is alike determined by the result of agriculture.

Science has within a few years done much in aid of agriculture; not that many positive discoveries have in the first place been made by the sciences, of which the agriculturist has availed himself; but the cause of certain results before known to the farmer, have been revealed by chemical or other researches, and thus the means of more certainty and in many more cases of producing the same results has been obtained. On this is based the improved system of agriculture. Where the earths are not in due proportion, it is impossible to make or keep the soil in a productive state. The nature of the earths is now inquired into, and their balance maintained by a rotation of crops, or the application of such matters as

shall prevent exhaustion, or restore fertility to such as have been improperly treated. The capabilities of the earth in affording food, when properly tilled, are but imperfectly understood. Now and then instances occur in which either by skill or accident these powers are developed to the surprise of all; but what is done in one case may be done in others; and when agriculture is what it should be, when the tillage of the soil, and the application of proper manures shall be better understood, the results that now astonish will become common, and while the labour shall be diminished, the product will be vastly increased.

AIR. In a state of purity, air consists of nitrogen and oxygen, in the proportion of 76 of the former and 23 of the latter; but as it exists in the atmosphere, it contains about one part in 500 of carbonic gas, and also aqueous vapor in the form of an elastic fluid, the proportion varying from the merest trifle, to 11 grains in a cubic foot. Air acts a most important part in the processes of germination, and subsequent vegetation, not only furnishing the oxygen required to decompose the carbonic gas consumed by the plants, but most of the gas itself. The water held in the air is also easily parted with, and hence the great advantage of aeration or frequently stirring the earth, to bring its particles in contact with the atmosphere. A square foot of earth in a solid form exposes but a small surface to the action of the air, and hence absorbs from the atmosphere but little; pulverize this mass, and the surface exposed to the action of the air is increased a million fold, and its powers of absorption from the atmosphere in the same proportion. This shows the absurdity of those who refuse in hot or dry weather to stir the earth around plants under the apprehension that it will render them more dry. Multiplying the absorbing surface by stirring the earth is the only way of obtaining the moisture which in greater or less quantities always exists in the atmosphere.

ALBUMEN. A colourless insipid fluid, coagulating at a heat of 120°, existing in the leaves, juices, and fruits of most plants, but most abundant in animal products. The white of eggs is nothing but pure albumen, and the blood contains large quantities of the substance. Its principal use in domestic economy, is in clarifying or cleansing fluids; such as sugars, &c., for which purpose it is unrivalled. Milk contains albumen, and hence is sometimes used for cleaning syrup, but it is inferior to the whites of eggs. These carefully incorporated with a fluid when cold, and then submitted to a coagulating heat, will lift all impurities to the surface, where they can be easily taken off by skimming. Albumen is more abundant in the bark of the red or slippery elm, than in any other vegetable product, hence its value for medicinal purposes. Albumen is composed of carbon 52, oxygen 23, hydrogen 7, and nitrogen 15.

ALBURNUM. Wood of trees is usually composed of three distinct parts; the pith or central part, having a loose spongy texture; the heartwood, the most durable and valuable part of the tree; and the sap wood or alburnum. This last is usually whiter than the heartwood, is more porous, and through it the circulation of the sap is principally performed. It is the soonest attacked by the borer or powder post, and in exposed situations is always first to decay.

ALCOHOL. The purely spirituous part of all liquors. It is the product of vinous fermentation,

and can be derived from all substances capable of such fermentation. It is the intoxicating principle of liquors, and few nations have been found so rude as not to have found some means of producing it. Alcohol is produced principally by the distillation of wine, molasses and grain. The product of the first is brandy, the second rum, and the third whisky or gin. Alcohol is of much use in the arts, but it has, by its general use, produced a most unhappy effect on the happiness and morals of multitudes. Perhaps greater quantities of distilled spirits are used by the nations that border on the Baltic than in any other part of the world, and here they are principally produced from the distillation of potatoes. Pure alcohol consists of hydrogen 13.70; carbon 51.98; and oxygen 34.32.

ALGAE. One of the families of plants into which Linnaeus divided the vegetable kingdom. They are defined to be plants of which the roots, leaves and stem, are all one. The remains of algae are abundant in a fossil state in the shale of many parts of New York, and their decomposition may have contributed to the fertility of the strata in which they exist.

ALKALI. A substance usually extracted from plants, and distinguished by the following properties: It has an acrid and corrosive taste and power; it changes vegetable blue to a green, red to a purple, yellow to a red brown, and purple reduced by an acid to its original colour. It is most used in the arts for neutralizing acids. It is best known in the shape of potash and soda. These unite with oils and animal fat, and form soap. Lime is possessed of alkaline properties, which give it its principal value in many cases. Alkaline substances have been divided into volatile and fixed: the volatile being known as ammonia, the fixed as potash or soda. Modern chemists have divided them into 3 classes: 1, those with a metallic base combined with oxygen; potash, soda and lithia; 2, that which contains no oxygen, as ammonia; and 3, those containing oxygen, hydrogen and carbon, as aconita, circuta, morphia, &c.

ALLUVION. Land deposited by the action of rivers; either at the mouths in lakes or the sea, or on the banks in their passages to these receptacles. Constituted as it usually must be of the richer and lighter parts of the regions drained by the river that deposits it, it is the most fertile of soils, and the most valuable, when it can be drained, or rendered secure from floods. Nearly the whole of Holland is alluvial. In this country the vast tract on both sides of the Mississippi, for a great distance from its mouth, is of this character; but owing to its annual submersion is of comparatively little value. Perhaps there is no river in the United States in proportion to its length and volume, that has so much valuable alluvion on its borders as the Genesee.

ALUMINE. One of the earths most important to the agriculturist, and entering largely into the composition of all rocks, clays and loams. It was formerly termed *argil*, or argillaceous earth, but Sir H. Davy's discoveries led to the belief that it was a metallic base combined with oxygen. It is found nearly pure in the Corundum; porcelain clays and kaolin contain about one-half of this earth, and it may be obtained pure from the alum of commerce, by chemical processes. Alumine is the principle that gives the peculiar tenacity and plastic nature to clays; rendering them heavy and impervious to water, in proportion to the quantity

contained in them. Alumine has a great affinity for water, hence clay lands are usually more cold and wet, and more difficult to cultivate than those into which it enters in less proportions. Its presence in soils is, however, absolutely necessary to prevent porosity; and when combined in due proportion with the other principal earths, it constitutes one of the surest ingredients of a fertile soil. Much attention has of late been paid to the amelioration of clay soils, and of all the methods tried, thorough draining has proved the easiest and most effective. When clay land is drained, its texture is changed; and the plants it naturally produces, as well as those it is made capable of producing, are of a higher and more valuable kind. Alumine is of much use in the arts; it is extensively employed as a cleaning powder; as a mordant in dyeing; and is the basis of bricks, crucibles and porcelain.

AMMONIA. Volatile alkali. It is a transparent colourless gas, of about half the weight of common water, with an exceedingly pungent smell, extinguishes flame, and is fatal to life. Its old name was "spirits of hartshorn." To the agriculturist, ammonia is particularly interesting from the fact that those substances that contain the most of it, are the most efficient manures, and act with the most certainty and promptness. Ammonia is produced from soft or fluid animal substances while in the process of decomposition, and this change is rapid in proportion to the quantity of earthy salts they contain. "It is particularly to the developments of ammoniacal gas," says Chaptal, "which, combined with gelatine, passes into plants, that we can attribute the wonderful effect produced upon vegetation by certain animal substances." These substances are the animal manures, the urine, *poudrette*, the bones, horns, hair, &c. The urine of the animal contains in muriates and carbonate of ammonia about 20 per cent., besides 11 per cent. of phosphate of lime and sulphate of potash, or 30 per cent. of the most active manure yet discovered; and the saving and proper distribution of it forms an important item in Flemish husbandry. The larvæ left after the cocoons are reeled in the extensive silk manufactories of France and Italy are considered invaluable as a manure. Their excellence is owing to the ammonia they contain, which in them Chaptal found to exceed in quantity that of any other animal substance.

ANALYSIS.—To determine the value of any soil, or to be able to correct any fault in the original constitution, or any deficiency arising from improper cultivation, it is necessary that the nature and proportion of the substances composing it should be understood. In agriculture this examination is termed analysis; and in its simplest, yet still effectual method, may be practiced by every farmer. The implements required are a pair of scales, accurate to the tenth part of a grain; a crucible; some muriatic acid, and a few small vessels of china or glass.

The earth to be tested by the farmer should be taken from a few inches below the surface, and be an average specimen of the field, or the soil to be examined. The quantity to be examined, say 2 or 400 grains, is to be slightly pulverized or well mixed together. Put of this, 200 grains in a crucible, and heat it to 300 deg. of Fahrenheit, or bake it in an oven, heated for bread, for 15 minutes; cool and weigh. This will show the absorbent power of the soil, and as this is depending mainly on the animal and vegetable matter, if the loss is considerable it is

a decisive proof in this respect of fertility. The absorbent power varies from 1 to 12 per cent.

After weighing, heat it again in the crucible to a red heat, and until the mass shows no bright or sparkling particles, stirring it with a glass or iron rod; cool and weigh, and the loss will be the animal and vegetable matter in the soil.

Take 200 grains of the dried earth, mix it thoroughly with a gill of water by stirring it for several minutes. Let it stand for three minutes, and turn off the muddy water into another glass. Dry the sediment in the first glass at a high heat, weigh, and it gives the silica contained in the soil. Let the water turned off settle clear, turn it off, dry at a high heat and weigh; this gives the alumine or clay.

Put into a suitable glass or flask, one-fourth of a gill of muriatic acid and water in equal proportions, and balance the scales carefully. Put into this mixture 100 grains of the earth, let it stand till all effervescence has ceased, which will sometimes be an hour or more; carefully note the weight required to again balance the scales, and that may be set down as the weight of carbonic gas expelled, say six grains. Then as 45 is to 55 so is this weight to that of the base, or the lime. In this case the lime would be $7\frac{1}{3}$ per cent.

To ascertain if earth contains iron, stir the muriatic acid and water with a strip of oak bark, and if iron is present in the liquid the bark will turn dark. To ascertain the quantity, put in prussiate of potash till it no longer forms a blue precipitate, let it settle, heat the deposit to redness, carefully weigh the remainder, which is oxide of iron.

To determine the presence of gypsum, take 400 grains of earth, mix one-third the quantity of powdered charcoal, keep it at a red heat in a crucible for half an hour. Then boil the earth in a pint of water for 30 minutes, filter the liquor and expose it for some days in an open vessel. A white deposit will be sulphate of lime, and the weight will determine the proportion.

These processes are all simple, and can be performed by any one. By them we obtain—1st, the absorbent power; 2nd, the amount of animal and vegetable matter; 3rd, the silica or sand; 4th, the alumine or clay; 5th, the carbonate of lime; 6th, the oxides of iron; and 7th, the gypsum, or plaster of Paris. The salts exercise a great influence on vegetation; but as they principally depend on the animal and vegetable matter in the soil, and as the determining their qualities and kinds are too difficult for the analysis of the farmer, the processes are omitted. The above ingredients are all that exert a marked influence on the fertility of soils, and on their proper proportion its goodness depends. If soils contain too much silica or gravel, they are porous; and if too much clay, retentive. The last is usually the worst fault, and may be known by the water standing upon it after rains, remaining unsettled for a long time, owing to the clay held in solution. Wheat, winter kills on such soils, on calcareous gravelly ones rarely. Good soils usually contain from 65 to 75 of silica; from 10 to 16 of alumine; from 4 to 10 of lime, and varying proportions of vegetable matters, animal and mineral salts, &c. The analysis of soils forms one of the most acceded steps in the improvement of agriculture, as it clearly points out what is wanting to remedy any defect, and give ease of working, and abundant in product. Every farmer should understand the nature and composition of his soils, and may do so with little time, and at a mere trifle of expense.

ANIMALCULE.—The microscope has opened

to the observation of man a race of beings so small as to be utterly invisible to the naked eye, yet endowed with all the functions of vitality, and perfectly organized animals. Some of these are called Infusoria; from being always found in water where plants are decaying, and some Diatomia, but all included under the term animalculæ. They have long been regarded more as objects of mere curiosity than any thing else; but recent discoveries seem to indicate that these minute insects have had an important influence in modifying the crust of the earth, and giving it the character it now possesses. Mountains of flinty rock in Silesia have been found by Ehrenberg to be wholly composed of the shells of animalculæ; and in this country masses of remains of the infusoria have been found several hundred yards in extent. Unlike the shells of the molusca and testacea, which are lime, the shells of these invisible animals are found to be unchanged by fire, and composed of pure silica. All bodies of long stagnant water, such as those where peat is formed, or bog earth deposited, abound with infusoria; and Professor Bailey, of West Point, has found at the bottom of peat earth, and in it, immense quantities of these minute remains. It is a curious fact that animals, invisible in themselves to the eye, should be able in the course of centuries to form mountains, change the face of continents, and exert an influence by no means trifling on the labours and productive industry of man.

ANNUAL.—This term is applied to plants that arrive at maturity in a single year, and then perish. The stem of annuals is generally of rapid growth, porous, and abounding in the juices necessary to the perfection of the seeds in a single season. The herbage of some plants is annual, while the roots are perennial, or remain from year to year. Maize is an example of a proper annual; the grasses, of perennial roots with annual herbage.

APHIS.—A family of insects that prey extensively on plants, and are endowed with such astonishing powers of reproduction, that though insignificant as individuals, they are formidable in their numbers, and in most years occasion more or less loss to the agriculturist. The congregations of aphides consist in spring and summer of apterous and wingless individuals, and of nymphæ with undeveloped wings. They have no mouths, but are provided with beak-like suckers, which they insert into plants, and feed on the juices. Almost every cultivated plant or tree has its peculiar family of aphid; and those trees or shrubs that are wild, or found only in the depths of the forest, cannot claim exemption. What is called the apple tree louse, is an aphid; and on lifting the scale-like covering, the depredator, and its implement of suction, can be seen. Another species infests the tender shoots of grass, and the thrifty shoots of the apple and other fruit trees, and if allowed to multiply unmolested produces great injury. The American blight, as it is called in England, or the *Aphis lanata* of the entomologist, is a destructive species, when permitted to make a lodgment on the apple tree, but fortunately the cotton covering in which it is enveloped renders it easy to discover, and thus timely put the fruit grower on his guard. In passing through the Tonawanda swamp from Lockport to Batavia in 1838, the Alder *glauca*, that lined the road was literally loaded in places with a species of aphid, the long cottony filaments of which, erect in air, seem to be waved at will, and simultaneously, giving a most singular aspect to the branches on which colonies were planted. The turnip is greatly infested with the aphid, as is the

rose, fennel, parsley, and many other plants cultivated for use or ornament. The aphid, while fixed by its sucker to the branch or the leaf, elaborates a sweet honey-like fluid, clear as water, and this is projected at will from two tubes in the hinder part of the body. We have seen in the sunshine these drops falling like the spray of a waterfall, from a fruit tree, on the leaves of which millions of the aphid were feeding. It is for this substance that colonies of the aphid are so frequently visited by the ant, which drinks the sweet fluid as it is thrown out by the aphid. Soapsuds, and a strong decoction of tobacco, have been deemed most effectual in destroying them; though when a foothold is once obtained, from their rapid multiplication, extermination is difficult.

APIARY.—The place or building in which bees are kept, is termed an apiary; and where these industrious insects are kept for profit, or for observation, much care is sometimes taken in this department of domestic management. There is no question that keeping of bees may be made a source of considerable profit at very little expense, as their feed costs nothing, and a residence is provided with the very hive in which they are placed. Moveable apiaries are common in eastern countries; and a long boat, with a hundred swarms of bees on board, accompanied by the owner, may be seen floating down the Danube, the Po, or the Nile, anchoring where materials for honey promise to be abundant; and moving onward when the district is exhausted of its sweets. Among farmers, too little attention is usually paid to the apiary; the hives being left exposed to the storms and cold of winter, and the intense heat of summer, without protection. Bees, like other domesticated creatures, will well repay care and attention.

AQUATIC.—Plants that live and flourish in the water are termed aquatic. There are also aquatic animals and birds. All our lakes, rivers, and the ocean, furnish specimens of aquatic plants, some of which are of great use and value. A large part of the soda of commerce is obtained from a seed weed, which, drifted ashore, is dried and burned for the soda of the ashes. Hundreds of square miles in the equatorial Atlantic, at some seasons of the year, are covered with this marine vegetation. Some seaweeds, as the alga, that grow as they float in the water, attain a length of several hundred feet. The rice plant of the East Indies and the Carolinas, is an aquatic plant, and probably contributes as much to human subsistence as any plant on the globe. The wild rice, *Zizania aquatica*, of our northern lakes and rivers, is of great service to the native tribes of those regions, feeding the immense quantities of water-fowls of all kinds that visit and breed in those inhospitable climes, as well as furnishing food to the natives themselves, when their usual supplies from other sources fail them. The flags, rushes, and other grasses that grow in the waters of the lakes, or other quiet waters, the pond lily, &c., are further examples of aquatic plants.

ARGILLACEOUS.—A term applied to soils in which clay forms a principal ingredient. It was derived from *Argil* or clayey, as aluminous from alumine. In agriculture, argillaceous and aluminous are words of the same import, and mean soils or earth in which clay predominates. "*Analysis*" shows how the proportion can be determined.

ARTESIAN WELL.—A kind of well, made by boring through the successive strata of the earth until water is found. This name is derived from Artois, in France, where the system of boring was first successfully adopted. By penetrating the rocky crust of earth

in this way, the water frequently rises to the surface and flows a living stream; in other cases it rises so as to be obtained without difficulty. In this country wells have been bored to the depth of a thousand feet, and those of 500 or 700 are not uncommon. Various products are obtained from the earth in this way. In Albany a valuable mineral spring has been reached by boring. The great quantities of water at the Kenhawa salines are obtained from Artesian wells. Springs of carbonated hydrogen, that burn with a perpetual flame; and immense reservoirs of petroleum (the Senaca oil of commerce) have been discovered while boring for salt or for fresh water. Artesian wells have been sunk in the deserts between Cairo and Suez, and abundant supplies of water obtained; and wherever the borings have been properly and perseveringly conducted, either in this or foreign countries, water has usually been procured.

ARTICHOKE.—Two plants of this name are cultivated for food; the first *Cyanara scolymus*, is chiefly cultivated in Europe for culinary purposes. The part that is eaten is the receptacle of the flower, divested of the opened florets, and the bristles that separate them. The head thus prepared is boiled plain and eaten with melted butter and pepper, and is deemed wholesome and nutritious. These *bottoms*, as they are termed, are also made into a variety of dishes, stewed and highly seasoned. The other plant is the one known as the Jerusalem artichoke, *Helianthus tuberosus*, and is cultivated for the root alone. It is a species of sunflower, grows wild in several parts of South America, and the root is potatoe shaped. The roots are valuable as food for animals, and are not unpalatable to man. They are found in most of our gardens, an improper place for them, as they are apt to spread, and are somewhat difficult to eradicate. In this country, few attempts have been made at their field culture, but those have been profitable. In highly cultivated grounds in England and Holland they have been found extremely productive, 70 or 80 tons of the roots having been gathered from a single acre. Their flavour is much like that of the former artichoke, when boiled and prepared for the table; and they are very valuable for feeding hogs and store pigs.

ASHES.—When wood is burned in a position that excludes the air, the product is coal; if combustion is performed in open air, the produce is ashes. Ashes by being leached, or having warm water passed through them, are deprived of the alkali they contain, and this is obtained in the shape of potash, or soda, by evaporation. Different woods, and plants, vary much in the quantity of ashes and alkali they produce; the fir, beech and poplar, ranking the lowest; and the box, willow, elm, wormwood, and fumitory, the highest. The leached ashes of several kinds of grain, were found, by Ruckert, to be constituted as follows:—

	Silica.	Lime.	Alumina.
Asbes of Wheat.....	48	37	15
" Oats	68	26	6
" Barley	69	16	15
" Rye	63	21	16
" Potatoes	4	66	30
" Red Clover	97	33	30

Leached ashes are found to be an excellent manure applied to soils that are light, or such as are inclining to be sour; the alkali correcting the acid with which such soils, as the vegetation proves, abound. In some instances, crops of grain, roots, and grass, have been nearly doubled by their use; and no skilful agriculturist permits their waste.

ASPARAGUS.—A plant cultivated in gardens,

and deservedly esteemed for its value as an article of food, when properly prepared. Its value is also greatly enhanced by the early season at which it is produced. It is the young shoots of the plants, as they attain the height of some four or six inches above the earth, that are used for food, and these are cut slanting upwards, about two inches below the surface. Asparagus is usually grown in beds, and requires a soil very rich and deep, and if not so naturally, it must be made so by trenching and manuring with fine manure or compost, before the plants, which are raised from the seed, are put into it. They may be set in rows eighteen inches distance, and ten inches in the row, or in squares at one foot distance. The beds during winter are secure from frost, and the plants prepared for an early start, by a covering of straw or litter. The beds must be loosened in the spring, and a coating of mould, saturated with liquid manure, worked in, has been found a capital dressing. A few plants are not cut, but reserved for seed, to keep a supply of the young plants for beds. In a favourable soil, an asparagus bed, when established and properly attended to, will last many years. The plants are usually allowed to stand three years before they are cut; some, however, commence on them the second year. They are boiled and eaten with butter, as are green peas, &c. The asparagus offers a striking instance of the effect produced on plants by cultivation. In some parts of Europe it is found growing wild on the sea shore, its stem not thicker than a goose quill, and only a few inches in height. The cultivated plant is sometimes found three-fourths of an inch in diameter, and grows to six feet in height. In the neighbourhood of cities or villages asparagus is cultivated as a source of great profit and it should find a place in every kitchen garden.

NITRATE OF SODA.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Having a farm of poor and exhausted land, on which I have lately entered, I would be much obliged by the advice of you or any of your numerous subscribers, whether nitrate of soda would be a suitable manure to lay upon it; and, if so, *how, when, and in what quantities* it should be used. My situation is too remote to bring bulky manures to, and I am anxious to find out the best and most portable to improve the land; the expense I do not altogether mind. My county (Westmoreland), you are aware, consists of shallow soil, and often very rocky, and is laid out in grass and pasture for sheep and black cattle.

I am your obedient servant,

Bowness, Westmoreland.

J. BELFIELD.

ON VALUING.

MR. EDITOR,—As I think all farmers ought to have a good idea on the subject of valuing, I should be much obliged to you, or some of the numerous readers of your *Farmers' Magazine*, to inform me which is the best work published on this subject, that a young farmer may instruct himself in taking his own valuation yearly—viz., in stock and crops, tenants' rights, and fixtures, thereby enabling him to know the state of his own circumstances, and which I think it dangerous for any man to go on without knowing.

I am, Mr. Editor,

A constant reader of your *Farmers' Journal*,
Nottinghamshire, Sept. 20.

T. D. B.

TO THE EDITOR OF THE SALISBURY AND WINCHESTER JOURNAL.

Cleveland, Yorkshire, Aug. 29, 1840.

Sir,—A friend sends me your Journal of Aug. 24, and I read in it the following account:—That “Mr. Beavan, of Ringwood, produced ten sheaves of wheat, that were tied in *single bond*, and thrashed in nine minutes by a hand machine; the produce, in measured corn, being two bushels, one peck, and half a gallon. The sort of wheat, called the *Golden Drop*.” The paragraph finishes with an assertion, that Mr. Beavan had in 1838, upwards of sixteen sacks per acre of the same sort of wheat in an adjoining field. This most surprising produce has raised my curiosity in no small measure, and I should very much like to know the number of sheaves on the acre from which the above were taken.

In this wheat-growing district, where sometimes may be seen from forty to sixty stooks of twelve sheaves an acre, *three pecks*, or *perhaps a bushel per stook*, *once in a way in a stook*, is, I will venture to say, the maximum of produce! It *beyond* forty stooks standing on an acre, I would say that the *produce* would be found to decrease in amount. As an average of the *best crop in bulk and produce*, forty stooks of twelve double-banded sheaves each, producing forty bushels of fair corn, is, I am convinced, all that would be given by the best-informed practical farmers. But what comparison will this bear to the Ringwood statement?

I hope the person who sent you the account of the Ringwood statement will be kind enough to give agriculturists and agricultural societies some more particular information about it, as at present I think it a very unsatisfactory one, both as regards the enormous yield of corn, and Mr. Howell's hand-thrashing machine. If the bulk of straw was so great as to admit of extra-sized sheaves in single bond, and the thrashing was correct as to time, then it ought to be presumed that the machine is of very far greater value as to performance than is stated by amount of *yield*—the most erroneous mode of testing a thrashing machine; the only true test being the amount of *length* of straw and *bulk* it will let pass through, and ears found to be free from corn after.

If, in the experiment at Ringwood, the straw was of *under average length*, and thus admitting of great rapidity of thrashing, then Mr. Beavan's *single-bond* statement must be a very puzzling one to any practical farmer. How could such *enormous excess of yield* be tied up in short single bonds? This would be the question at once. By knowing nearly the amount of sheaves on the acre, and their probable length alone, can any one be at all a judge of the full value of Mr. Howell's machine, or of the correctness of Mr. Beavan's statement?

I am, sir, your obedient servant,

CLEVELAND.

ON THE HOOSE IN CALVES.

TO THE EDITOR OF THE MARK LANE EXPRESS.

MR. EDITOR,—Your correspondent Mr. Thomas Mayer, V.S., whose letter on the “Hoose in Calves” is inserted in your paper of the 14th inst., will much oblige me if he will state the proportions of lime and water he recommends for making the lime water, as I am most anxious to try his receipt for the cure of Hoose, a complaint which, when once established in cattle is, I believe, a most difficult one to get rid of; and in this part of Devon it has been very prevalent this summer. I have a cow now with the hoose. I first observed it about three weeks ago, and supposing that she had taken cold, I bled her, gave her $\frac{1}{2}$ lb. Epsom salts, $\frac{1}{2}$ lb. sulphur, and the following day three powders, each containing

- Si Tartar Emetic,
- Diij Digitalis,
- Siii Nitrate potash.

This treatment checked the hoose for a short time, but I am afraid it is now coming on as bad as ever; and, as in other instances, I have tried the nostrum of the village cow-leech without good effect, I shall be delighted to try Mr. Mayer's recommendation, if he will be kind enough to give me the information I have requested, or any other hints which he might think proper. With many apologies for the length of this letter, and hoping that you will not object to insert it in your valuable paper, whenever you have room to spare, I remain, Mr. Editor, your constant reader,

ALGERNON CAPEL.

Bideford, Devon, Sept. 16.

SIR,—In looking over the *Mark Lane Express* of this week I find a letter on a disease called the “hoose” or “huak” in calves, signed by “Thos. Mayer, sen., V.S.,” in which a solution of lime and salt are recommended as a specific for the affection. Your correspondent says “I have found that half a pint of lime water administered every morning to a calf, and a dessert spoonful of salt, every evening, dissolved in a pint of water, generally restores the animal in the course of a fortnight or three weeks, but that in extreme cases of hoose the operation of tracheotomy must be resorted to.”

Without doubting the efficacy of this prescription, or seeking to detract from the merits of one who is good enough to volunteer information to the public upon so important a matter, I nevertheless feel inclined to make a few remarks upon the disease in point, and to detail a mode of treatment which has been productive of very satisfactory results. Whatever may be the immediate cause of the malady, I leave to those whose province it is to study the subject, and who are consequently better anatomists than myself; I believe however the wind-pipe to be a good deal, if not principally affected. Having seen a great number of calves suffering with the hoose, or huak, and having administered what I consider to be an infallible cure (from the success that has uniformly attended the application,) I venture to submit the following remedy to agriculturists and all other breeders of cattle; it appeared in a newspaper many years ago recommended by a Welchman, (and the Welch we know are au fait in their treatment of all diseases incidental to cattle) from which I extracted it, and at this moment have it by me:—3oz. asafoetida, 3oz. horse aloes, one quart of vinegar, boiled together a few minutes, to be given in the morning fasting, once in three days. A table spoonful to be poured into the nostrils with a horn, care being taken to hold up the head of the calf to prevent waste; if the first application does not succeed, repeat it; if the calf has not been neglected, and the above remedy has forthwith been adopted, a second application will generally be found unnecessary. I have known one or two instances where a third application was resorted to, which terminated favourably. It ought to be observed that during the process of physic taking, the invalids should be kept in a yard night and day, and be fed with a little good seed, or clover hay, which they generally prefer to anything else; and when they have pretty nearly discontinued their hoosing, may be turned into a sound pasture, but not until it has become dry.

In this district the disease commonly breaks out in the autumn, when calves have been kept too long in the marshes, being exposed to foggy wet warm weather, and partaking greedily of strong succulent grass. I do not in the least question, or doubt the result of the treatment propounded by your corres-

pendent, whose letter in your Journal I have just read on the foregoing malady, but knowing how desirable it is to have all the information that can be obtained, whether on this, or any other subject, and as many young beasts are lost from the farmers not understanding the nature of the disease, I have ventured to trouble you with a mode of treatment which has been adopted by myself, and which from the success that has uniformly attended it, I have no hesitation in recommending to such as may like to avail themselves of it, if you deem it worth inserting in your influential Journal.

I am, Sir, your obedient servant,

Sept. 17.

A SUSSEX FARMER.

CALENDAR OF HORTICULTURE FOR OCTOBER.

The first rain which may be considered of any utility to the ground commenced on the 14th ult., after as brilliant a day and night as any the season had witnessed: the earth was dried by the long absence of penetrating rain; red spider, (acarus) the annoyance of droughty periods, was preying upon, and abstracting the juices of cucumbers, melons, and peach leaves, and had in many instances completed the destruction of the French beans; and those vegetables which usually grow vigorously in September were comparatively torpid; even the weeds could make no advances. It is curious to observe the anomalous condition of the weather in localities by no means remote from each other. We of the south have had no ground rains whatsoever, while, if we may credit the papers, the north-west counties, Lancashire in particular, have been the scene of storms, and almost continuous rain during successive weeks.

The condition of the gardens must therefore vary in proportion; and we would recommend our readers to keep a daily diary, by which accounts and statements may be compared, and a variety of useful facts elicited. The present rains will greatly facilitate the operations now to be noticed, and render them more available and productive.

IN THE VEGETABLE DEPARTMENT,

The *Beet roots* will swell and become juicy, which would not have been the case had the drought continued. Let some be dugged up, cleaned without wounding them, the tops trimmed, and then be stored in a dry shed or cellar, leaving the bulk of the crop in the ground till November, as the plants will still improve.

Carrots should also be stored in sand; they ought to be all taken up, as the flavour and texture do not improve by keeping after the end of October. Yet let not our meaning be mistaken, for though beet and carrot do not mellow in the earth, they retain their juices in perfection, as is proved by the vigour with which they develop the floral stem in the ensuing spring. It is a severe frost which we wish to guard against. But *parsnips* acquire sweetness and flavour by remaining undisturbed till February.

Cabbages.—A few seedlings may be set in close order, in a nursery-bed of pure loam. Rich earth, at this season, tends to produce decay, not growth.

Cape brocolis are in season. Take up the roots, and clean the soil; wherever a head is cut, the leaves and stalks soon become offensive.

Spring brocoli plants, if in trenches, ought to be

earthed from the ridges. If on level ground, a slope to the north might be cut by the spade, the stems and heads made to incline northwards, by gentle pressure, and then the earth cut out can be laid on the stems; this process is safer than that of disturbing the roots to lay them down.

Cauliflowers under a south wall are to be covered with hand or bell-glasses, but a garden frame affords the best security: air, in any case, must be given freely.

Asparagus beds must be regulated, if the haulm be quite ripe; let that be cut down with a sharp hook and carried away. Sweep off the fallen seeds and litter, obliterate the weeds, and cover the surface with manure taken from spent 'linings.' This is a plant upon which we would hazard the *nitrate of soda*, by sprinkling now, *over the manure*, about one pound over 24 square yards of surface. We have tried it in that proportion during the parching weather of August, with water, along a *celery* trench, more than twice, and the plants grew as richly as others with much manure.

Sea-kale beds must be cleared of decaying leaves and weeds; after which a light sprinkling of sandy earth may be given to clothe the crowns and render the plot slightly; here is also a site wherein the *nitrate* might be tried, carefully avoiding to let any particles fall into the crowns, for we have proved its destructive power when in actual contact with succulent vegetables.

Rhubarb beds ought to be dressed, manuring around the plants; if any of these have been observed to flag and lose verdure during the summer growth, let a trench be opened, spade-wide, around the plant, to discover the roots, even to the bottom, but not so as to undermine them. Fill up that space with fresh, virgin, turfy loam, manure at the top, but not mixed with the soil, now. In March the manure will be forked in, and more can then be added.

Sow radish seed over an old hot bed, adding a little light loam. As growth advances and frost comes on, put on the lights; also, in event of heavy rain, radishes will be yielded about Christmas: *lettuces* can be so grown, but slugs must be looked after, or all the young plants may vanish in one night.

FRUIT DEPARTMENT.

Apple and pear trees are now planted to the greatest advantage, and it is the season above all others when an orchard can be formed. We advocate the general introduction of dwarf Standards, for they are the trees which can most readily, and in the shortest period, be brought into a fruitful condition.

The ground is thus prepared. Select a piece of good free loam, no matter what its extent, greater or less; remove the turf, if it be meadow or common, by paring it from an inch to an inch and a half thick. Pile these turfs in a square heap; for the earth thus prepared, (if the loam be free and open) is invaluable to the potting and flower departments.

Dig the ground in several places to ascertain the quality and depth of the good soil; and wherever it is possible, trench to the depth of 18 inches—never attempting to bring inferior earth to the surface. But if at 12 or 14 inches the soil become harsh, clayey, or gravelly, raise the top good earth and dig, or at least disturb with the pick-axe the inferior stratum. If gravel and cold clay prevail, meliorate it by chalk—to the extent

of one-third, or even half of the bad earth; if chalk be unattainable, add clay to the gravel; and ashes, brick rubbish, or any litter, lightening material to the clayey subsoil; then return the top earth, without adding any manure. Purchase *maiden trees*, with one year shoots from the grafting or budding, and plant them about ten feet apart, in alternate or quin cunx order, expanding the smaller roots as correctly as possible, insinuating fine earth, so that it lie in close contact with every portion of them. Fix the tree correctly and firmly, and then puddle it, by pouring a forcible stream of water from the nozzle of a pot held high above the soil—drive in a small stake to each tree, secure both by a hay-band and soft fillis-string, and make the surface even with a little fine earth. After a second watering, (if October be fine and sunny, as it occasionally is,) mulch around each bole, and over a yard of the soil with stable litter and year-old cow, or sheep-dung. Of the future treatment of the trees, we hope to write in due season; it now will suffice to say that by a similar method of planting all the spur-bearing, stone-fruited or drupaceous trees, and berry-bearing shrubs can be made to succeed at this season almost without a chance of failure, provided, first, that sound young trees be obtained; and second, that the earth be a pure haze loam, void of any manure except the fibres of the natural turf. Manure as top dress only is admissible.

Good drainage is more essential than great depth of staple; and this may be obtained by laying a five or six inch stratum of stones, brick-bats, flints, or lumps of chalk at the bottom of the trenches at eighteen or twenty inches depth, if the land appear springy. A ditch or drain, however, should pass along the lowest side of the plot in connexion with the drainage stratum, to receive and conduct away the water which will ooze through its interstices.

Peach and nectarine trees retain their leaves long; therefore, at the end of the month when they become loose, though still green, it is customary to brush them upwards with a whisk, which by detaching them exposes the bearing wood to the sun. Persons who undertake the management of their own wall trees, (and it is more wise so to do, than to confide in dabbling workmen, ignorant of every physiological principle,) should remember that the fruit of next year is always produced by the young spring wood of the present year. Therefore, the maturity of these bearing shoots is of consequence. A certain and well balanced quantity of this yearling wood ought to be annually retained, and all superfluous crowding shoots cut quite out. This clearing of the trees may be advantageously performed at the present season; but the *pruning* of the retained shoots we would defer till the spring sap begin to stir, and swell the buds.

Plant Raspberry shrubs, selecting strong and single rods of the year's growth. Be it recollected that, in most kinds of soil, raspberries seldom prosper more than five years; therefore a new plantation should not be attempted to be made in soil that had borne raspberries the previous year. A vegetable crop will clear the land considerably, but it would be well to give it two complete courses of cropping before raspberries be re-introduced. The same remark will hold in the case of *Strawberries*, the theory of rotation of crops being applicable to them, and indeed to every vegetable crop in the garden.

SHRUBBERY AND FLOWER-GARDEN.

Prune the former with judgment. It is not enough to thin out, because a person in so doing may cut out all the flowers of his shrubs. Some produce at the axillæ, as the *ribes*; some from the buds, high and low, as the *rose*, whence roses may be had at various seasons; others at the apexes, as the *lilac*. Therefore the observant pruner will cut, curtail, and thin out, according to the natural laws. How clearly does every real fact call on the gardener to educate himself in the science of horticulture!

Deciduous shrubs and evergreens can be planted now, observing to spread out the roots over an even surface of soil, that has, however, been moved; and to scatter fine earth over the fibres. After planting and watering, the surface should be raked and left orderly for the winter.

Little remains to be done in the flower-garden but to take up in succession dahlia-roots, the herbage of which is nearly torpid; to take up also every remaining greenhouse-plant, and after carefully collecting the wandering roots, to plant them in light, simple earth, using small-sized pots.

At a season when growth is to be deprecated—unless in peculiar stoves—we disclaim the application of stimulating manures; hence would prefer the plainest turfy loam, sandy heath soil, or a mixture of both, to rich vegetable earth and old cow-dung.

Herbaceous plants may be divided and replanted, removing the portions to fresh situations. After these revivals, rake or spud-hoe the surface, and scatter a mixture of loam and leaf-mould evenly over the ground.

A frost of some severity occurred on the 18th of September, and the wind, veering to N.E., give indications of a cold season; the gardener, therefore, should be on the alert, and leave nothing to contingencies.—Sept. 18.

The busy time of harvest being now over, the meetings of farmer's clubs will be renewed with double vigour. The following arrangements have been made for the remaining meetings of the Harleston Farmer's Club for the present year:—

SUBJECTS FOR DISCUSSION.

In the October Meeting.—The adjourned discussion of last year, on "The best method of planting Wheat," when those Members who then agreed to institute experiments on the subject of thick or thin planting are requested to lay the results before the meeting.

In the November Meeting.—(Being that for the show of Roots).—"The best method of preparing the land for the future Root Crops."

In the December Meeting.—"The comparative advantages of Threshing Corn or Seeds with the Flail, or by Machinery."

BAD BEER IN OLDEN TIME.—"Also the bere, that came hither for my Lord Lizle, is suche as no man may drynk for the most part. I have assayde the most part of it, and the treasurer and the clerk controller the rest; and as moche as may be drunken, is delyvered to the shippes, and the rest I shall send agayne to London, for Heron is servaunt, that hathe the delyvere of it here, saith that the Brewers be bounde to take as moche as is unable stuff. I know not what the kyng payeth, but I assure your lord-shippes, moch of it is as small as peny ale, and as sowre as a crab. I dout not your lordshippes will see the brewers punysshed."—*Letter of Lord Thomas Howard, High Admiral of Henry VIII.*

IMPORTANT SALE OF AGRICULTURAL STOCK.

Of the celebrated stock on the farm of the late Mr. Quartley, at Molland, in this county, nothing need be said, since not only here but in every part of England it is acknowledged; and when announced for sale by that excellent judge, Mr. Thomas Hussey, of Waybrook, near Exeter, the greatest interest was excited. The sale took place on Thursday last, at Molland, and as matter for present admiration and future reference, we present the result to our readers.

Lot—No. 1. Was a Cow or Calf, and this was knocked down at.....	£	s.	d.	No. 9 Bull Calf	13	13	0
1 do.....	46	4	0	10 do..	22	1	0
2 do... ..	33	12	0	11 do...	10	10	0
3 do... ..	31	10	0	No. 1 Heifer in Calf.....	46	4	0
4 do... ..	26	5	0	2 do... ..	29	8	0
5 do... ..	25	4	0	3 do... ..	32	11	0
6 do... ..	31	10	0	4 do... ..	15	15	0
7 do... ..	25	4	0	5 do... ..	31	10	0
8 do... ..	43	1	0	6 do... ..	16	5	6
9 do... ..	26	5	0	7 do... ..	21	0	0
10 do... ..	18	18	0	8 do... ..	25	4	0
11 do... ..	22	1	0	9 do... ..	17	17	0
12 do... ..	22	1	0	10 do... ..	14	14	0
13 do... ..	16	5	6	11 do... ..	21	0	0
14 do... ..	26	5	0	12 do... ..	27	6	0
15 do... ..	31	10	0	13 do... ..	16	5	6
16 do... ..	21	0	0	No. 1 Yearling Heifer.....	54	12	0
17 do... ..	15	15	0	2 do... ..	29	8	0
18 do... ..	16	16	0	3 do... ..	21	0	0
19 do... ..	25	4	0	4 do... ..	18	18	0
20 do... ..	8	8	0	5 do... ..	17	17	0
21 do... ..	29	8	0	6 do... ..	13	2	6
22 do... ..	24	3	0	7 do... ..	10	10	0
No. 1 Heifer Calf	15	15	0	8 do... ..	19	8	6
2 do... ..	6	6	0	No. 1 Yearling Bull.....	26	5	0
3 do... ..	6	16	6	2 do... ..	16	16	0
4 do... ..	4	14	6	3 Old Bull	33	12	0
5 do... ..	5	5	0	No. 1 Two 3 year old Steers	39	18	0
6 do... ..	15	14	6	2 Two do... ..	44	2	0
7 do... ..	5	15	6	3 Two do... ..	37	16	0
8 do... ..	6	16	6	4 Two do... ..	35	14	0
9 do... ..	19	19	0	5 One do... ..	13	10	0
10 do... ..	5	5	0	6 Two 2 yr. old Steers	33	12	0
11 do... ..	6	16	6	7 Two do... ..	28	7	0
No. 1 Bull Calf	24	2	0	8 Two do... ..	23	0	0
2 do... ..	13	13	0	9 Two Steer Yearlings	26	5	0
3 do... ..	19	8	6	10 Two do... ..	21	0	0
4 do... ..	5	15	6	11 Two do... ..	14	14	0
5 do... ..	5	5	0	12 One do... ..	8	8	0
6 do... ..	11	11	0				
7 do... ..	6	6	0				
8 do... ..	5	5	0				

The summary of the sale of bullocks, therefore, will stand thus:—

	£	s.	d.	AVERAGE EACH.	£	s.	d.
22 Cows	5	6	9	0	25	5	0
11 Heifer Calves	98	14	0	0	9	0	0
11 Bull ditto	136	10	0	0	12	8	0
13 Heifers in Calf	315	0	0	0	24	5	0
8 Yearling Heifers	184	16	0	0	23	2	0
3 Bulls	76	13	0	0	25	10	0
22 Steers	326	6	0	0	15	0	0

Added to the above sums the purchasers paid the Commission of 2½ per cent.

There were also sold 900 Exmoor sheep, at from 18s. to 24s. each, and 17 horses and colts.

This memorable sale was very largely and most highly respectfully attended, many persons being present from the upper counties,—Norfolk, Warwick, Berkshire, Hampshire, &c., &c., &c.; and among them was the Steward of the Earl of Leicester, and two of his lord-

ship's tenants, who purchased 19 of the bullocks. Some of them also are going into Warwick, and Berkshire. There were likewise some spirited customers from Cornwall, as well as the neighbourhood of Exeter. A Cow and Yearling Heifer were purchased by one of these at 100l. 2s., and in all 11 of the bullocks will go into that county.

The Auctioneer gave proof of his perfect knowledge of his business, and the biddings were most spirited. Indeed, to show that there was nothing like lagging in the work, we may mention that the sale commenced at half-past 1 o'clock, and the whole (90 bullocks, 17 horses, and 900 sheep) were sold in less than four hours!! The 900 sheep were sold in lots of 20 and less, and were all knocked down in the short space of half an hour!!

THE RIVAL "CHEVALIERS."

TO THE EDITOR OF THE HAMPSHIRE COUNTY NEWSPAPER.

SIR,—The public is indebted to you for the observations contained in your last, as to the near resemblance of the names of these two very different wheats, whose qualities are as opposite as the temperature of the North and South Poles; the names are even more alike than you have reported. It should be "Chevalier's Prolific Brown Wheat," and "Brown's Prolific Chevalier Wheat," which two, by a transposition of words, and the alteration of one letter, are one and the same sentence. The similarity, I have reason to know, has deterred many a farmer from sowing Brown's White Chevalier; a wheat which, for produce and value of straw and grain, I am disposed to match against any known description of white wheat; I have tried it in large and small allotments against Whittington, Red Lammas, Golden Drop, Talavera, Golden Swan, Trump, &c., and it beats all in the quantity of its produce, and the quality of its flour. A neighbour of mine has thrashed from seven acres this season 77 sacks of this wheat, being 11 sacks to the acre, growing on soil not worth more than 11s. per acre. Of course the land was in good condition, but not out of the way; having been wheat, barley, grass, manured for turnips, which were good, and now wheat. I have many ears taken from the middle of a field, containing from 80 to 95 grains each. The Whittington is condemned with us as an autumnal sown wheat; it being the only variety affected with red rust—other varieties growing in the same field being untouched; the sample uneven, and the grain light. Provided the corn were as valuable, I am not satisfied it would not answer better than the Talavera as a spring wheat; for, having a deficiency of the latter to finish a field this year, on the 3rd of March I drilled two bushels of Whittington. It will be recollected that we had a drought of many weeks at that time, and none of my field appeared above ground until the middle of April; under a favourable summer and good ground it grew rapidly, and produced a good crop, but the Whittington was a foot higher than the Talavera, with as many grains in one ear as the Talavera had in three, with no symptoms of rust, which so much affected that sown in the autumn; the absence of which I attribute to its coming into ear at a later season, more congenial to its nature. The Golden Drop and Brown's White Chevalier are the two favourites for general sowing in this neighbourhood. Report speaks highly of the new Red Britannia for stiffness and length of straw, and quantity of produce; but there is yet but a small quantity sown.

I am, &c.,

Witchurch, Sep. 23, 1840,

PRACTICAL.

2 A

REPORT

TO THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, OF A CHEAP MODE OF BREAKING THE PAN AND STIRRING THE SUBSOIL.

To Mr. Smith, of Deanston, the merit of the invention of the subsoil plough must be thankfully awarded by every agriculturist, and where it is applied, there can be but one opinion as to the efficient manner in which it does its work. We must recollect, however, that there are a great many instances in which farmers, on a moderate scale, cannot conveniently procure this somewhat costly implement, and even if they did possess it, they might not have the complement of horses necessary for working it effectually. It has occurred to me, therefore, that if a substitute, even to a limited extent, could be placed within the reach of all, it would be a considerable benefit, and, for some time, I have directed my attention to this point.

While discussing the plan which I have now adopted with a friend in Edinburgh, he suggested a scheme which, by the September number of the *Farmers' Magazine*, p. 169, appears to have previously occurred to Mr. Pusey, M.P. It is the application of a cutter, resembling the plough coulter, immediately behind the heel of the common plough; but, after consulting some practical people, I found that an implement of this description would be very heavy in the draught, unwieldy and difficult to manage, particularly in turning, even if it had the wheel in front, as shown in Mr. Pusey's English plough, but which is very seldom applied to a Scotch one. I, therefore, reverted to my first project, which, after a few modifications in the manner of working the implement, is as follows:—

I took off the wings of a common drill grubber (with wheels), leaving merely the beam with the leading tine, which, by means of a wedge, can be so adjusted as to penetrate to the depth required, and I found, that by following with this machine in the furrow made by a common plough preceding it, the effect was infinitely more powerful than I could have imagined—at various depths, ranging from 3 to 8 inches below the furrow.

The beam should be lowered as much as the wheels will allow, which gives the tine a greater power of resistance, but, the implement being quite light, a boy of 12 years old can guide it, and all that is required is to raise it up a little when it meets with any impediment which might bend the tine.

Lost this application of the drill grubber should not have been hitherto attempted, I think it right to send this notice of it to the Society, and from the experiments I have already made, I feel confident that those who may be induced to adopt it will find it, at least a more effectual and a cheaper mode of breaking the pan and stirring the subsoil than that which is occasionally resorted to—viz., by making one plough follow in the furrow made by another.

I have tried it in a field of, perhaps, as stiff a soil as any in the kingdom, and find that, for a depth of 5 inches below an 8-inch furrow, the draught for 2 horses is about the same as in a common plough, and a depth of 3 inches gives the same draught for one horse. In lighter soils, of course, the depth can be greatly increased with the same draught, but care must be taken in coming in contact with drains and fast stones.—I remain, &c.,

JOHN S. RICHARDSON.

Pitfour Castle, Sept. 15 1840.

TALLOW AND THE ANGLO-RUSSIAN TRADE.

GENTLEMEN,—In accordance with the promise which I addressed to you through the *Morning Herald* of the 31st inst., I proceed to the consideration of our commercial intercourse with Russia (embracing other articles of foreign growth as well as tallow), and the effect deducible from it on British industry and capital.

I told you tallow was not the only article of northern produce which is brought here with the brand of Russian monopoly upon it, and at the moment I was penning that assertion, the *Dundee Journal* had just been published with the following statement regarding flax.

DUNDEE, SEPT. 1.—In our last we stated that a great advance had taken place in the prices of flax at St. Petersburg previous to the 13th ultimo, and advices of a later date put us in possession of the quantities sold, even at higher rates than we then mentioned. They are as follows:—

13,000	poods 6 and 9-heads	flax, at 85r. and 98r.
85,000	" "	" 90r. and 100r.
6,300	" "	" 100r.
19,000	" 6 and 9-heads	" 110r. and 110r.
and 7,300	" 9-heads	" 112r.

And the prices which the dealers demand for the remainder of their stocks are 105r. and 115r. for 6 and 9-heads. At Riga, on and previous to the 15th ult., DC and RT had been sold in considerable parcels at 20r. and 28½r., and TR was held at 33r. and 34r. At Archangel flax was in good demand at 37r. for Orbnoroy, 34r. for Crown, and 25½r. for fourth sort. As was to be expected, this great advance in the price of the raw material has had a great effect upon our market: 2½ per ton of a rise on the prices of flax has been demanded by holders on the finer qualities of flax, and a corresponding rise on the prices of yarns is demanded. The manufacturer can ill afford to pay this rise, and the natural consequence is that he must limit his operations until the prices of the manufactured article will admit of his giving the rise demanded."—*Dundee Courier*.

There is, it is true, little consolation in the reflection that if your branch of trade is bad, others are as bad or worse; but if it can be shown that this unnatural state of things is chiefly the result of our own want of foresight, and that year after year we have submitted to be fleeced by these foreign extortioners, let us now at least bestir ourselves, and resolve to play that game no more. For instance, let us take the attempt of Mr. Biddle, the celebrated American banker, to raise cotton to a fictitious value, and observe the sequel—that great speculator, though upheld by all that talent, money, and influence could effect, was, by the manly courage of the Lancashire spinners, defeated, and Mr. Biddle was compelled to retire from the field a discomfited and unhappy man. Again, let us call to mind the no less famous allow-speculation, by a foreigner of the name of Hilbers, which you will all recollect as having terminated in loss and disaster to all the parties engaged in it, because you abstained from buying his tallow until the price receded to 31½ per ton. But in 1838-9, prudence seems to have forsaken you. Right or wrong you would buy tallow, up to the extravagant price of 59s.; thus thrusting your property into the pockets of alien monopolists; but the moment you had relieved them of that season's forestalling, and the time had arrived for collecting the next year's supplies in the interior of Russia, down came the price from 59s. to 46s., causing to some of you, if not all, a loss of 13½ per ton. I rejoice to hear that you are not likely to play that game this season. Already, at this early period, the stock of tallow in London is enormous: about 25,000 casks against 7,600 casks this time last year, none of which will be wanted at the outports, as the supplies from Russia and South America to Liverpool and Bristol, Scotland and Ireland, are fully as abundant as to the Thames.

Therefore, treat the idea of scarcity, the only legitimate excuse for high prices, as a farce; buy steadily from hand to mouth, and not only will you defeat these Russians for this season, as the Lancashire manufacturers defeated Mr. Biddle with his bales of cotton, but you

will ensure for yourselves moderate prices for next year, because your friends, these Russian commercial magnates, will not dare to make extensive contracts in their own country for the following season, until they have rid themselves of their present stock here and to arrive. To the flax spinners of Scotland and Yorkshire I tender the same advice, and hope they will adopt it, because there is no way of baffling a commercial conspiracy so effectual as a general abstinence, on the part of the manufacturers and consumers; and certainly with our present prospects of abundance of all the products of the earth at home and abroad, we may laugh to scorn the attempt to burden us with foreign products at war prices in time of peace.

I hope, gentlemen, you will not imagine from anything which I have advanced, that I desire for you or myself any other than a fair system of reciprocity in our dealings with the subjects of foreign states. Do we get this from Russia? Look at her tariff and at ours; and, above all, contrast the treatment of our merchants by her Government, and her citizens by ours. While by the laws of England, and no less so by the liberal disposition of her people, these Russian monopolists have the free run of our markets to the exclusion of native merchants, while all their transactions are untaxed, and held sacred from the inquisitor's eye, there is not an entry made in the books of any of our countrymen settled in her dominions, that is not required to be made known to the officers, with a view to be taxed at the end of the year.

I have given you at foot the weekly returns of the stock of tallow warehoused in London on the 21st September in each of the years 1837, 1838, 1839, and 1840, together with the price of yellow candle. This list speaks for itself; it tells you, the manufacturers of soap and candles in Great Britain, that although the supply this year exceeds by threefold that of 1839, you will be expected to pay 50s. per ton additional merely to please these two or three Russians and their barkers.

A MANUFACTURER.

	1837.	1838.	1839.	1840.
Stock.....	20,603	9,699	7,591	24,611
Delivered last week	3,544	2,869	2,479	2,592
Ditto from 1st June	32,866	27,016	25,945	19,861
Arrived last week	5,156	2,980	2,197	4,453
Ditto from 1st June	43,183	33,260	23,035	29,004
Price of Y. C. Tallow ...	40s.	52s. 9d.	49s. 9d.	52s. 3d.
Ditto of Town ditto	44s.	56s. 6d.	53s.	56s. 6d.

THE TALLOW TRADE.—The letter on the high price of tallow, which was noticed a few days ago, has called forth another, the object of which is to account for that price, notwithstanding the large stock in London. The different bases of argument adopted by our two correspondents are, that the one who complains of the high price refers to the London stock, while the one who justifies it refers to the quantity at St. Petersburg. Thus, the latter explains the circumstance of the stock being at present large in London by the fact that the shipments from St. Petersburg are earlier than usual, and a greater quantity has been shipped off, and states that the stock at St. Petersburg is 20,000 casks less than last year, while the whole quantity that will be brought down there in the course of the year will be no more than 140,090 casks, in addition to which 12,000 casks may be got from Odessa. He adds the following estimate:—

	1836.	1837.	1838.	1839.	1840.
Casks.	Casks.	Casks.	Casks.	Casks.	
Stock at St. Petersburg, June 1	41400	42188	18080	1580	9408
Brought down	141220	137800	132450	162800	140000
Total	182620	170088	140930	164180	140408
From Odessa.....	14400	15200	110000	11000	12000
	107020	106183	151930	175780	161408
Stock, London, June 1 ..	16781	10286	3646	10350	16400
	213801	205469	155576	186130	170808

By this it appears, that the price has followed the total numbers, for in 1836 and 1837 it was low (44s. and 40s.), because the quantity was large, rose to 53s. in 1838 because it was moderate, continued high in 1839 for a similar reason, and is so in the present year. Of this total sum that regulates the price, the London stock forms but a small item, and, not varying according to the total itself, cannot form an index to the rise or fall of the price. As communications on a subject like this can scarcely come from parties completely disinterested, the arguments on both sides, and especially estimates on future contingencies, must be received with some degree of caution; but, admitting the numerical statements to be correct, the arguments advanced by the second correspondent appear the soundest, although his views promise less advantage to the public.—*Times*.

THE TALLOW TRADE.—The price of tallow is still discussed on both sides with much pertinacity. The correspondent who originally argued against the highness of the price, on the ground of the stock being large in London, and who was answered by another, who replied by stating the smallness of the supplies from St. Petersburg, has taken a new ground to defend his position. He would question the accuracy of the statements respecting the supply, and by showing how false the current reports last season turned out to be, makes a new statement by striking an average for the present year's supply taking the medium between the actual and reported supply last year as a basis. Last year he says the report was that the supply would be 140,000 casks, and yet it turned out to be 162,000, even according to the statement made by the opposite party. The supply for this year is also reported to be 140,000 casks, and he would therefore, taking a medium, as above described, set this down at 151,000. The estimate will then be—

	Casks.
Stock at St. Petersburg (in round numbers) on the 1st of June.....	10,000
Brought down	151,000
From Odessa.....	12,000
Stock in London, June 1	15,000
Total of Russian tallow	188,000
Add for South American tallow	12,000

And the total is..... 200,000
Now, for 1836 the total has been stated at about 214,000, and this difference our correspondent contends is not enough to account for a difference in the prices of 12s. per cwt. He also argues against the alleged fact that the shipments from St. Petersburg are earlier and larger than usual, which was asserted to show that the London stock must not be taken as a criterion of the supply. He then gives the following statement of the shipments by the last mail:—

	Casks.
1838	103,350
1839	87,622
1840	76,764

The article is one of such great importance that every attempt to come at the true state of the case must be interesting. Having laid the statements on each side before the public, it is for them and the traders in the article to decide which has the best of the argument.—*The Times*.

STATISTICS OF ARTIFICIAL INCUBATION.

—Above 30,000 birds, chiefly the common fowl, have been hatched by the ecdysiobion during the two years it has been before the public. The eggs used have exceeded 40,000, being a failure of about one-fourth. This is not owing to any defect in the machinery, or its application, but to want of impregnation, staleness, or jolting of the eggs in conveyance to and from the market. The greatest number of failures are from eggs laid during the moulting season, when the ill-condition of the birds renders many of them unproductive. Most of the birds are reared, and fatten well, the average loss being less than in the farmyard.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR SEPTEMBER.

From the commencement, until about the 20th of this month, the weather was exceedingly favourable for the ingathering of the crops in all parts of England; indeed the progress made in the fields, during that period, in securing the wheat, barley, and oats was wonderfully great. Since the latter period, however, until near its close, the atmosphere was much less propitious than could have been desired; the wind having vibrated from the south to the north west, bringing with it some heavy showers of rain, which materially impeded the progress in our northern districts, and caused serious apprehensions to be entertained of much of the late produce being considerably damaged. However, we are happy to state that the intelligence which has reached us thence from our numerous correspondents, is by no means of so unfavourable a character as might, under existing circumstances, have been anticipated, since we learn that, on good soils, a fair clearance has been already effected of the wheat, barley, and oats; while, on heavy lands, harvest at least, should the atmosphere prove tolerably fine, is expected to be concluded by, or shortly after, the first week in October. Should such be the case, the wheat cropping will be ended nearly, or quite, ten days earlier than was that of last season, and, we trust, prove remunerative to the growers. From the southern, western, and midland counties, in which scarcely any corn, if a few patches of oats be excepted, is out lying, our accounts state that the fine and seasonable rains have been of great advantage in bringing the land into a good tilth for ploughing, which operation has progressed rapidly and with few interruptions; indeed, the whole vegetable creation appears to have derived considerable benefit from the tolerably plentiful supply of moisture which has lately fallen.

As a difference of opinion still appears to exist, even amongst those immediately engaged in agriculture, as to the quality and general yield of the present year's wheat crop, we have been at considerable pains, since the date of our last report, to arrive at conclusions on this important subject, and, with the aid of some of the leading men in the kingdom, with whom we feel justly proud in being identified, the result of our inquiries has exceeded our most sanguine expectations. Not that we mean to assert that the harvest, as to the quantity grown, will exceed that of previous seasons, but that the condition never was exceeded, which circumstance must, as a matter of course, prove of the greatest importance to the producers, who for good heavy wheats can always find a ready market, at tolerably fair prices, while it too often happens that the weathered sorts cannot be got off even at a great sacrifice.

The duty on foreign wheat, in the course of the month, having receded to its almost minimum point, the greatest activity has been apparent by the holders of that grain releasing the whole of the bonded stocks, at the various imports of 2s. 8d., 6s. 8d., 10s. 8d., and 13s. 8d. per qr.; but it is fully expected to rise, shortly, to 16s. 8d., in which case, most of the cargoes to arrive will be landed in warehouse, for a short time.

Throughout our provinces, the receipts of grain direct from the farmers have been on a very moderate

scale, which circumstance has caused holders to demand, during the last ten days, improved currencies. The finest heavy wheats, in all the principal markets of consumption—viz, Liverpool, Hull, Boston, Birmingham, Bristol, Newcastle, &c., have commanded a steady sale, at fully, but at nothing quotable beyond, previous rates; while the value of the middling and inferior descriptions has been well sustained. New malting barley has sold briskly, at fair quotations, which may now be said as fairly made; but grinding and distilling sorts have been much neglected, without alteration in price. The malt trade has been much depressed, and the weathered qualities have fallen 1s. per qr. Owing to the abundance of free foreign oats, that article must be noted from 6d. to, in some transactions, 2s. per qr. cheaper, with every prospect of a further decline. Scarcely any really fine Scotch oats have been offering. Beans and peas without material alteration.

We regret to state that the growth of hops has turned out an almost utter failure, arising from a preponderance of mildew, blight, &c., which has not been without considerable effect upon the value of all descriptions, an improvement of nearly 80 per cent. having taken place in their quotations. From Kent and Sussex, about 3,000 pockets of hops have been received in the Borough; some of the finest of which have realized from 17l. to 20l. per cwt.; while the mouldy kinds have gone off at 9l. to 12l. per cwt. It is expected that the old duty will not exceed 30,000l.

Although considerable quantities of wheat, barley, and oats were saved in different parts of England in the early part of the month, we regret to state that the heavy rains experienced from the 20th to the 26th materially retarded the progress of harvest, and thereby caused much inconvenience to the farmers. The various markets have been amply supplied with grain, the demand for which has proved heavy, at drooping prices.

In the south of Ireland, nearly the whole of the crops have been secured; but, in the north, extensive breadths of barley and oats remain in the fields. With respect to the probable yield, it is anticipated that it will not exceed an average. The wheat and oat trades have been excessively dull, at considerably lower rates.

In our great stock districts, the epidemic amongst cattle has been raging, and causing great losses to the graziers; and the depastured stock has not fared so well as we have sometimes had occasion to notice. The turnip crop is fully expected to fall short of an average, which circumstance has induced higher rates to be demanded for both old and new hay.

The following is our usual monthly statement of the transactions in Smithfield Cattle Market. The supplies of beasts have consisted of 16,020; of sheep and lambs, 142,429; of calves, 1,400; and of pigs, 3,823; while the prices have ranged as follows:—Beef, from 3s. 2d. to 4s. 6d.; mutton, 3s. 4d. to 5s.; lamb, 5s. to 5s. 8d.; veal, 4s. to 5s. 4d.; pork, 4s. to 5s. per 8lbs. to sink the offals.

Owing to most of the stock coming to hand in bad condition, the finest beasts and sheep have sold briskly, at full prices; but, in order to effect sales of the middling and inferior kinds, lower prices have been submitted to.

The arrivals of slaughtered meat up to Newgate

and Leadenhall markets have been on the increase, but, as they have come to hand in inferior condition, they have sold at very low prices.

A STATEMENT and COMPARISON of the SUPPLIES and PRICES of FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, September 30, 1839, and Monday, September 28, 1840.

At per 8lbs. to sink the affals.

	Sept. 30, 1839.				Sept. 28, 1840.			
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coarse & inferior Beasts	2	4	2	8	2	10	3	0
Second quality do.	2	10	3	2	3	2	3	4
Prime large Oxen.....	3	6	3	10	3	6	3	10
Prime Scots, &c.....	4	0	4	8	4	0	4	4
Coarse & inferior Sheep	2	8	3	6	3	2	3	6
Second quality do.	3	8	3	10	3	8	3	10
Prime coarse woolled do.	4	0	4	6	4	0	4	4
Prime Southdown do..	4	8	5	0	4	8	5	0
Large coarse Calves ...	4	0	4	4	4	2	4	6
Prime small ditto.	4	6	4	8	4	8	5	0
Large Hogs.....	3	10	4	6	4	0	4	0
Neat small Porkers ..	4	8	5	0	4	8	4	19

SUPPLIES.

	Sept. 30, 1839.	Sept. 28, 1840.
Beasts.....	3,674	3,658
Sheep	25,910	27,510
Calves.....	127	121
Pigs.....	410	563

BEDFORDSHIRE.

It is now our pleasing task to inform the public that the harvest is quite completed here; in fact there was but little white corn out at the end of August, and the weather for the first fortnight of this month was very favourable for winding up the few late pieces of barley and the beans and peas. The crop taken together must be regarded as a good average one, and remarkably well got in. We had a few fine showers about the middle of the harvest, but without the least damage being done. The wheat is not so bulky a crop in straw as it usually is, but promises well as to yield, except where the plant had become very defective; in such cases the produce per acre cannot be good: this applies, however, fortunately, to no very considerable part of the crop. The barley on our best convertible land is a superb crop, and the quality fine. Upon the very strong clays and chalky soils it is not so good: the backward sown in particular has done badly on the dry soils. Upon the whole, however, we regard this crop also as a good average one. Oats are also generally good; and having lately had an opportunity of seeing a large portion of the Huntingdon and Cambridgeshire Fens, we found this crop remarkably fine there, and generally well secured. Peas are also after all better than was expected, though not equal to an average of years; and the same may be said of beans, not being so good as of late years. The fine showers in the middle of the harvest greatly improved the turnips, and the weather for the last ten days has again been very favourable to their growth, but nearly all the latter sown ones lost plant, so that in this county they never can make a full crop; some, however, never were better, and we have seen some good mangel wurzel and cow-cabbages. The rains, though very beneficial, have never been for the last three months sufficiently heavy to make the pasture ground yield a good supply; there has been therefore generally a great want of feed; and the evil has been, in some districts, greatly aggravated by the prevailing epidemic among both sheep and beasts, but particularly the latter. Within the

last few days, however, we have had some very fine showers, which have fallen most opportunely for preparing the land for the wheat sowing; and on the southern side of the county, on the chalky slow growing soils, some of our farmers have already commenced putting in this crop. The young seeds are generally weak, and will this year afford but very little autumnal feed. Since the introduction of a considerable quantity of foreign wheat into the market, prices have gone down about 1s. per bushel; that is, from 9s. 6d. to about 8s. 6d., and there is not much probability of its going down much further, at any rate not till the sowing season is over; and the probability is, that it will range for the season somewhere about 8s. the bushel—a price of which neither grower nor consumer ought to complain. The price of wool remains stationary, though within the last fortnight there has been a rather greater disposition to buy, prices varying from 1s. to 1s. 3d. per lb. We are very happy to report that there is some probability of our being benefited by a new railroad, running direct from Manchester and Leicester, through the heart of this county, to London; and it affords us great pleasure to find, that it not only meets with the concurrence of our leading merchants and manufacturers, but also very generally of the owners and occupiers of the soil, notwithstanding the great nuisance which we admit railroads are to the latter, during the period of their construction. It is idle, however, now to stand out against the astonishing powers of locomotion which modern science is introducing; and if it is simply regarded in the first instance only as circulating an immense capital through a large portion of the working and trading parts of the community, it cannot but be beneficial. Besides which, the one in question will not only run over some of the finest coal mines in the kingdom, but will, by the most direct course, connect nearly the whole of our great manufacturing towns immediately with the metropolis. Whereas, the zig-zag course of the Birmingham line is not only quite out of the way of these great towns, but totally incompetent to meet the present increasing demands for railroad accommodation. The projectors of the above line have, therefore, our warmest good wishes, and we doubt not but they will meet with the countenance and support of all the intelligent part of our agriculturists.—Sept. 25.

LEICESTERSHIRE.

Previous to the present harvest, the public mind was never more sensitive upon any subject than the great importance to the country of securing the grain in good condition. In whatever company you might chance to fall, the first topic introduced was the state of the crops, and what disastrous consequences must ensue if the produce of our soil should be injured by adverse weather, with expressions of sincere gratitude to the Giver of all Good, for the brilliant sunny days with which August commenced. Not only the agriculturist, but the merchant and manufacturers, were united in this opinion, and it must show to the former that he is bound for the welfare of his country, to cultivate the land he occupies in such a manner as will ensure the greatest produce, and prevent as far as possible our being dependent upon foreign countries for the bread we eat. In a few days after my last report of 23rd July, the weather changed for the better, and from the 26th, to the 11th of August we had not a drop of rain—and the power of a glorious sun caused a wonderful improvement in the corn crops. On the late sown

wheat, and especially that sown in spring, the progress in four or five weeks was extraordinary, and this continued till they were ready for the sickle. I expressed an opinion that in these crops there would be a falling off in the produce, but I am most happy to say, that from the favourable circumstances for their ripening, the deficiency will not be so great as I anticipated. My impression was, that on the best soils the crop would be an average one, on others two-thirds, and on the inferior one-half. The result, however, will be a much greater yield; I believe on the worst soils the produce will be two-thirds, and many on the better kinds may be expected to equal the produce of the autumn sown crops, especially the *Talavera*, which variety appears much better calculated for spring sowing than the golden drop or old lammass. Though this has been a most favourable season for spring sown wheat, still it has established no principle in favour of the system; and I think the farmer would not act wisely to adopt that plan if he could get his wheat in by the middle of November in a tolerably fair state. Though the generality of wheat was thin on the ground, still the yield will not be diminished from this circumstance, the straw being much stronger, and the ear longer and better filled, than in a heavy crop when laid. The new wheat is of a very superior quality to last year, and in comparing the produce of each, from the partial failure of some spring sown crops, and a somewhat less breadth sown, I believe in this district it will not be so great in measure as last year; but, in estimating the quantity of food produced, we must take into account the quality. I find in what I have thrashed off, exactly the same quantity of land as last year, an increase at least of a stone per sack in weight; this I calculate will amount to six per cent., and I shall not overrate the increase of flour at four per cent. more; so, in case the produce of corn should measure one-tenth less per acre, still there will be as much food in the shape of bread, and the quality very much superior. I believe that the extra weight and improved quality will compensate for the deficiency I apprehend there may be in the quantity. The barley crop is heavier than for some years, and the produce will be abundant; the increase in weight from last year is even more than in wheat, I find it beyond a stone per sack, and the quality is superior. I believe the oat, and especially the bean crop is equally great; the latter long in the straw and well corned. I am happy to say all the white corn is got in with the exception of a little late sown wheat in high and cold situations; but the weather is so good, and if it continues a few days longer, by the end of this week there will not be fifty acres of wheat outstanding in the county. Beans will mostly be in the stack by the same time. This has been a most propitious harvest, and the great bulk of the corn got in in excellent condition. Perhaps some persons might be in too great a hurry in the early part having the recollection of last year in their minds, but those who had patience got theirs exceedingly well, and the latter harvest has been secured in excellent order. Not only the farmer but every person should be thankful to Providence for his great goodness in thus perfecting and blessing the labours of the husbandman; for getting the harvest well, and corn of a good quality, highly concerns every man, woman, and child in Britain. As to roots and vegetables it is highly gratifying to be able to report that they are abundant; and the food for cattle in the winter will be beyond an average. I do not recollect the turnip crop so universally good, especially the Swedes, a failure is scarcely to be found.

It is true that some fields cut a sorry figure in regard to weeds in this crop, but if the drill and horse-hoe were more used in this county the evil would be remedied, and the weeds eradicated at one-fourth the expence of cleaning a broad-cast crop. Potatoes and mangel are also good, though many of the latter plants have run to seed, if they are cut off two or three inches above the root when about two feet high they will not be much inferior to the other. The fallows for wheat are in a state of great forwardness, and it is the farmer's fault if they are not in excellent order to receive the seed, the weather having been so favourable for working them. Many, where tares have been eaten or mown off, are to appearance in as good a state as the dead fallow. I fear my account of the grazing department will not be so favourable as in the farming, for I regret to state, that little profit is made on cattle for their summer's keep, though the average price of fat beef has been 6d. per lb. The grazier gives three reasons for this. 1st, The beasts were too dearly bought in. 2nd, The pastures have not been so good from the prevalence of cold frosty nights, and not yielded either the quantity or quality of grass, as in other seasons—the latter masts are also very deficient. 3rd, The *Epidemic*, which has made sad havoc with beasts when about fit for market, if they are sent with the complaint upon them; the price is consequently very low, and if kept, they lose their flesh rapidly, and are a long time regaining it. I stated in my last that the disease was on the decline, and I hoped would soon disappear, but it baffles all speculation, foresight, or treatment, and I regret to add is now more general in the county than ever. Several flocks of sheep are affected, and it is more fatal to them than to beasts. I cannot say many cattle have died, but sheep and pigs certainly have, and it severely affects those that recover. It has made its appearance more than once in the same individuals, and perplexes the owners as to what mode of treatment is the best. Some persons maintain it is better to leave them to their fate, giving them fodder only when they cannot graze. From what I have seen of the complaint, I should attend to the state of the bowels, and if that was natural, give warm nourishing drinks of gruel, linseed, &c., but should the contrary be the case, some opening medicine ought to be given—one to two drams of calomel in camomile tea is much recommended by persons who have tried it. Careful treatment and good nursing will be of greater benefit, in my opinion, than drenching them with purgatives. However, the epidemic has become alarming from its long continuance, and being increasing, and I cannot agree with letting it take its course without endeavouring to alleviate or arrest it. The price of grain has fallen since new corn has come into the market—the best new wheat, 18 stone per sack, may fetch 70s. per qr., but more is making 66s., and up to the former price. From the London market holding firm under the influx of foreign wheat, at 2s. 3d. duty, we do not expect it will be lower at present, and no great quantity of samples are seen in our market for this season of the year. Barley begins at a much lower rate than last year, though the quality is much better, and weight greater. A few samples have made 40s. but the bulk of what has been sold is from 36s. to 38s., with a tendency to further decline. In oats and beans there is little alteration, the former 30s. to 34s., and beans 44s. to 46s. Seed tares are 11 to 12s. per bushel. I am sorry I cannot say much in favour of an increased demand for wool. The Leicester trade has improved, though not to the extent of former years, and the Yorkshire market is in a

sluggish state; yet, wool may be quoted 1s. per tod higher than at the fair, but no great stroke of business is doing at that advance. The opinion is that it will sooner be higher than lower, as farmers are not willing to take 30s. per tod, but this entirely depends upon an improvement in trade, on which any opinion at the present moment, appears of very little value. We are giving our best labourers 12s. per week. I cannot conclude this report without recommending two implements which I have lately used—they are so effective in their operations upon stubborn clay soils in particular, that I am surprised they are not in more general use.—“Biddell's Scarifier,” and “Cro-skill's Clod-crusher.”—Sept. 21.

N.B. As I have not seen a single smut in my wheat crop during the course of reaping, or in that which I have thrashed, it leads me to believe that my plan of dressing the seed is effective. I therefore, beg to refer any of your readers to the method I adopt, which may be found at page 321 of the Farmers Magazine for November, 1839, signed G. K.—Sept. 22.

LINCOLNSHIRE—LINDSEY.

The south wolds from east to west of this division, as well as the fens, have concluded, with the exception of a few fields of late sown wheat, and the beans, one of the most auspicious and least expensive harvests ever remembered: labourers were plentiful, and the weather all that could be wished. Cutting and carrying went on so closely together, that as soon as the former was finished the latter had only to be effected by carrying the last sheaf from the hands of the binder; and with very few exceptions, the condition was dry enough for immediate thrashing. For those farmers of the north wolds, from Louth to Boston, the weather has been equally good for the getting in half, or more, of their corn, but this week having been wet, for the most part of every day, little progress can have been made, and a good breadth of both barley and oats remain in the fields; they have not, as yet, had

sufficient rain to damage or sprout any of the corn, yet the colour will suffer in brightness, and the delay will increase the expenses of harvesting. Of the crops generally throughout this county, they are fully up to an average in quantity, and very far above it in quality and weight. Thrashing has not been so general as frequently immediately on the close of the harvest, and more of the stacks will be thatched down, to keep longer than usual, for every one seems anxious to set about getting in the crop for another year, rather than selling that of the present. The rain, though not wanted by those who are yet in the midst of harvest, has come opportunely for setting the ploughs at liberty, and we are most actively employed to begin our proceedings for wheat sowing. The beans, which are a fine crop, and well podded from bottom to top, are in the course of cutting, but it may be said of this grain, that no haste is ever exercised in getting it stacked, for once bound in sheaves, and set up in fours to a bunch, it will stand all weather, and be got in in fine condition, by catching a fine day for carrying at last. Our meat markets hold up to higher prices than usual, so near to Michaelmas; and fat cattle do not come in so large numbers as usual at this season, neither are those from the best lands so fat as generally, and we may say, from various causes, the grazing season has been a bad one; many of the cattle bought to feed are worth now very little over the cost price of last spring. Wool also does not move in value above the quotations of last month, say 28s. to 30s. per tod, without anything like a brisk demand. The value of land is fully equal to the prices of last year, although we thought then the maximum had arrived, and that this autumn a downward tendency would have shown itself. Corn, rather than cattle and sheep for their feeding profit, seems to be the ruling produce whereby to judge of its value, and by this test the prospect is good for those who wish to effect sales, and many proprietors are trying to take the benefit thereof; the only difficulty has been the investment of capital so obtained, to produce a safe and increased interest.—*Spilsby, Sept. 25.*

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

MOFFAT SHEEP SHOW AND FAIR, Sept. 11.

—There was a very large show of Cheviot tups for sale, but the demand and prices were less than usual, and a good many were left unsold. There were also a number of Leicester tups for sale, which seemed to meet a tolerably ready market. The competition for premiums given for Cheviot sheep was of the most spirited kind, most of the lots being from the stocks of the most distinguished breeders of Dumfries-shire and Tweeddale, and indeed considered the best in the South of Scotland; and the judges had great difficulty in awarding the premiums, particularly for the tups. The show of black cattle was also very superior to any that has been for a number of years past; and the judges declared that they had never seen some of the lots of stirks surpassed. The quality and number of the cattle competing, indicated the renovated attention given to the breeding and rearing of Galloways in Upper Annandale. There were a good many small lambs shewn for sale, and also several lots of very superior two and three-year old Galloway stots and heifers from farms in the vicinity of Moffat, which, notwithstanding the recent great fall in such cattle, gave from 11l. to 12l. a-head. The attendance of sheep farmers and dealers from the surrounding districts and counties was very

large, and a great deal of business was done in the sale of slack ewes, wool, &c. The following premiums were awarded:—Best 6 cheviot tups, Mr. Aitchison, Menzion, 5l.; second best do., Mr. W. Carruthers, Kirkhill, 3l.; best single Cheviot tup, Mr. Moffat, Garwald, 2l.; best 10 Cheviot gimmers, Mr. Aitchison, Menzion, 3l.; second best do., Mr. Laidlaw, Cassock, 1l. 10s.; best 10 ewe lambs, Mr. Moffat, Garwald, 3l.; second best do., Mr. W. Carruthers, Kirkhill, 1l. 10s.; best 10 black-faced gimmers, Mr. Laidlaw, Cassock, 2l.; two best Leicester tups of any age, Mr. Barry, Poldenn, 4l.; two best one-year old do., bred in Dumfries-shire by one farmer, Mr. Hamilton, Thorwald, 2l. Cattle:—Best lot Galloway stirks, Mr. Stewart, Gillenbie, 2l.; second best do., Mr. D. Rogerson, Leithenhall, 1l.; best two-year old quey, Mr. A. Henderson, Hazlebank, 1l.; best Galloway bull, Mr. Johnstone, Capplehill, 1l.—*Dumfries Times.*

LEWES.—The great Sheep Fair was held last Monday, Sept. 20. There were about 30,000 sheep penned, for which there was a brisk demand, the attendance of buyers being very numerous, and we are informed that very few were driven away unsold. The broken-mouthed Southdown ewes are eagerly sought after by the buyers of the north, both for breeding and fattening;

and our flockmasters are always ready to part with them, the short herbage of the Downs not being so well suited for this description of sheep as the more tender herbage of the northern counties. Mr. Ridge, who had some fine sheep, sold 100 ewes at 50s., and let his rams at from 10 guineas to 35l.; he also sold 100 yearling wethers at 37s., and 100 lambs at 27s. The prices for ewes ranged from 24s. to 42s.; wethers, 35s.; and lambs from 17s. to 26s. The day being tolerably fine, a great number of persons attended the fair, and among the company we observed Lord Cantilupe, who took great interest in the proceedings of the day. Three refreshment booths were on the ground. In the after part of the day several of the most eminent flockmasters and purchasers dined together in various rooms at the White Hart. Mr. Tiverson, a buyer from Cambridge, who has been in the habit of attending the fair for the last 30 years, took the chair, and congratulated the breeders of Sussex on the increasing prosperity of the fair. Mr. Raven, an extensive purchaser from Norwich, said he believed this was the 31st year he had attended this fair, and he was exceedingly pleased with it. He thought, a few years ago, that it had reached its climax; but he discovered every year some improvement, and so long as he was able, he should continue to attend the fair. The observations of these gentlemen were received by the company with loud marks of approbation.

READING FAIR commenced on Monday, but the quantity of cheese pitched was not so much by 50 tons as last year. The trade was extremely flat, and full one-third was left unsold at the close of the second day, owing to the very high prices asked by the dairy farmers. The following may be quoted as the prices:—New double, from 58s. to 72s.; old, from 72s. to 84s.; single Gloucester, from 54s. to 63s.; being an advance upon last year's prices of 10s. a cwt. The few good horses exhibited commanded high prices.

WORCESTER CATTLE FAIR was well attended, but the sales were dull, arising, no doubt, from the scarcity of keep generally. Had the recent refreshing rains occurred a week earlier, we have no doubt a brisk demand for store stock would have taken place, as the supply, particularly in sheep, was of a very superior description. Indeed we heard several judges observe that the quality was not to be excelled; and in number there was a very considerable increase, as compared with the September fair of former years. For information to our agricultural friends and others interested, we subjoin the numbers penned at the last fair held in the Old Sheep Market and those since:—

In 1837.	1838.	1839.	1840.
4,916	5,561	6,120	7,433

A convincing proof of the necessity of erecting a cattle market, and also of the estimation in which the increased accommodation is held by the public generally. The supply of good fat beasts was scanty, but there were plenty of a middling description, which did not go off well. Good in calf cows were much sought after, and good cows and calves met with ready buyers at great prices. Beef averaged, according to quality, from 6d. to nearly 6½d; Mutton, 6d. to 6½d. A few good horses, both of the nag and waggon kind, were in request, and brought good prices. The total of stock exhibited, was—Beasts, 357; Calves, 20; Sheep, 7,433; Pigs, 341; Horses, 382. Our next fair takes place on Monday, November 2, there being none appointed for the month of October, it being generally understood, both by the farmers and dealers, that each and every market-day, from the present time to November, is a small Fair for store stock.

BARNET FAIR.—There were only 4,810 Scotch beasts at this market, (which has been known to show 13,000), a very short supply of Welsh, Herefords, and Devons. There were very few purchasers present, which may be accounted for from the shortness of keep in that district of country, and the prevalence of the epidemic, which has for some months been raging amongst the cattle. The disease alluded to was for some months confined to Norfolk, Suffolk, and Essex, but latterly

has been spreading, and has now found its way so far north as Thirsk, in Yorkshire. Scarcely a Scotch beast was shown at Barnet which was not more or less affected by it; and a letter, which we have just seen from Harlebury fair, Essex, (held on the 9th inst.), states that the distemper still continues unabated. The fair there was quite as bad as at Barnet. Cattle at both fairs were losing all expenses, and some considerably more. The prices of Highlanders ranged from 12l. 17s. 6d. to 4l. 10s. Cattle bought at Dumbarton fair, in June last, were leaving nothing for grazing, and losing all expenses. It may be interesting to farmers in Ayrshire to know the nature of the disease to which I have referred. The first symptoms are foaming at the mouth, the eye becomes dull and heavy, the tongue enlarges with blisters, the hair stares, and the joints above the hocks swell. In an advanced stage of the disease the hocks frequently fall off, and the poor beasts being thus unable to pull food, are sustained by hay, and sometimes oatmeal gruel. Though severe, it is not very fatal. The remedy, commonly applied, is a pound of Epsom salts, with a table spoonful of ground ginger, and sometimes a little saltpetre, diluted in water. The tongue and mouth are recommended to be rubbed with salt—in consequence of which the outer coating of the tongue slips off. It is more severe on dairy cows than on any other description of stock, decreasing their milk, and rendering what little is left unfit for human food. We have heard of a gentleman to day who had 220 cattle left from Barnet, who used 1 cwt. of salt in three days. We have heard of one or two instances where cattle have taken the disease twice.

SHEEP-SALES.—Some most important sales of South-down sheep took place during the week preceding the last, by Messrs. Verral and Son.—At Mr. Hillman's at the Goat Farm, Ringmer on Wednesday, a flock of 900 ewes and wethers, and 19 rams, was disposed of. Notwithstanding the unfavourable state of the weather, there was an excellent attendance at the sale, and the sheep fetched very good prices. The price obtained by Mr. Plumer Verral, were for ewes,—full-mouthed 3l. 3s., six tooth 3l. 12s., four tooth 4l. 11s., two tooth 3l. 5s., wether lambs 23s. The average of ewes was 57s. 4½d., that of yearling rams 7l. 2s., and of ram lambs 2l. 18s., a two year old ram sold for 9l. Among the principal buyers were Messrs. T. Morris, Madgwick, Malpas, Gorringe, Sadler, Kent, Saxby, Hart, Guy, Mannington, &c.—The flock of Mr. Tourle, at Landport farm were put up on the following day by the same Auctioneers. The weather was favourable, and a large company assembled. The highest prices obtained on this occasion, were as follow:—two tooth ewes 41s., four tooth do. 40s., six tooth do. 46s., full mouth 41s. The average being 32s. 6d. Sir F. Russell, Messrs. Jenner (of Midhurst), Hillman, Brookier, Kent, Wille, Woodman, Holland, Guy, Rose, &c. were the chief buyers.—Mr. Thomas Ellman's annual sale and letting took place at Beddingham on Friday. The highest price obtained for one year old ewes was 4l. 4s.; two year old 2l. 8s., three year old 2l. 16s.; full mouthed 5l. 5s.; the average price being 2l. 13s. 4½d.—The rams were let at from 12l. to 20l. 9s. 6d., the latter sum being bid by Mr. Wyatt for a fine animal (No. 4).—The principal rams were hired by Messrs. Putland, H. Boys, Farncomb, Veal, and John Ellman. Among the buyers of ewes were Messrs. Putland, Hart, Hodson, John Saxby, Gorringe, Waters, Child, Kaven, Colgate, and John Ellman. The cup given by Mr. T. Ellman for the best ram lamb was won by Mr. Putland.—Mr. John Ellman's annual sale and letting took place at Glynde on Saturday; and though the best rams of the flock had been let at shearing time—when some of them obtained as much as 64l.—those that were put up on this occasion, realized very high figures, having been let at from ten guineas to 31l. 10s., the latter sum being given by Mr. Bishopp, for the three year old ram, No. 30. The ewes, one year old, fetched from 37s. to 63s.; two years old, 40s. to 46s.; aged, 50s. to 110s.; do (gone to ram), 60s. to 180s. The chief buyers were Messrs. Putland, Boys, Hods, in, Woodman, Hart, Elphick, Ridge, Burg, Turner, Veal, Hampton, Savary, and Shutter.—Mr. Putland also gained the cup given by Mr. John Ellman for the best ram lamb.

REVIEW OF THE CORN TRADE

DURING THE MONTH OF SEPTEMBER.

The month of September has been on the whole favourable for securing the grain crops, and in every way propitious to the growth of turnips, potatoes, and pasturage in general. Nothing has occurred since our last publication in any way calculated to alter the opinions which we have latterly ventured to give respecting the prospects of this harvest; on the contrary, our predictions regarding the result of it have been in all material respects fully verified by events. The new wheats, even already, come away unusually freely from the flail, and in quantity, we are happy to repeat that this article is fully equal to the average of years. In no season of late has the quality of the wheat crop been superior to the present one, indeed it is considerably better than any produced in the last two or three seasons. If we say that the improvement in quality this year over that of the last is at least equal to ten per cent., we are persuaded that our calculation is within bounds; and to the baker this superiority in the quality of the new wheat must prove of still greater importance than it can be to the farmers themselves. We are unable to quote the variation in prices betwixt the actual value of wheat during the month of August and the month which has just passed. In August, as we stated in our last number, there was an improvement in the average prices of wheat by which the duty on foreign imported wheats was regulated, whilst on the other hand there was a decline both in the value of flour and in the price of wheaten bread. We were at the time unable to give any satisfactory reason for this seeming paradox, nor have matters since, in any material degree, tended to throw any additional light on this circumstance. The advance in the average price of wheat, however, produced that effect which the speculators in it intended, and the decline in the value of flour prevented the consumers from having any cause of complaint. During the greater part of September there has been a gradual decline in the average prices of wheat, whilst there has not been any correspondent depreciation in the value of flour or bread. The consequence of this state of the wheat market, however, during August, has been the admission of fully one million of quarters of wheat, besides flour, of foreign growth, into our markets of consumption on the payment of a perfectly nominal duty. As money, however, had previously been remitted from this country to foreign nations, in payment for this grain, to the amount of somewhere about two millions sterling, to admit it into home consumption, even had it been duty free, was the most speedy and most certain way of placing this large sum again into circulation, and of rendering it useful and beneficial to the trading and commercial interests at home. In the state of the present wheat crop the admission of this foreign wheat can be of little consequence, for it can make no alteration in value, as prices cannot be low during the present season. The doctrines of the anti-corn law philosophers have, however, received another rather important check during the present harvest time, for no sooner was it ascertained that the wheat crop would be a large one, and consequently that a stop would for a time be put to any farther exchange of money for foreign food, than an increased activity began to prevail in all the manufacturing districts, and the people were again

restored to full employment and to correspondent rates of wages. The autumnal demand for manufactures is always enlarged in proportion to the enlargement of the means possessed by the agricultural interest to pay for them, and a good crop is always considered sufficient security, by manufacturers and tradesmen, for a more than usual increase in the home consumption of all the articles produced by their capital, talent, and enterprise. Hence it no sooner became evident that necessity would no longer exist for any immediate farther remittance of money to foreign nations in payment for foreign food, than preparations on an extensive scale were made for increasing the quantity of the stock of goods intended for the home market, and the manufacturing labourers were again placed in full employment. Although the value of grain therefore, during the season, may be maintained at nearly the present rates, yet this apparent dearthness is merely relative, for it is, and will be, entirely in correspondence with the value, in this empire, of productive labour. To remit money to foreign nations in exchange for food is much more detrimental to the interests of the industrious classes, than even the subsidies were during the revolutionary war with France. In the former case the labour in the fields is restricted, whilst by subsidies the agricultural operations can never be interfered with. In the former case also, should a free importation of grain ever be tolerated by the law, the people will be deprived of that description of productive employment, which has its origin in national improvements. Had the corn trade for instance been entirely free during the last twenty years, the sixty millions sterling which have latterly been invested in the formation of railways alone, and thus have afforded good wages to a vast number of industrious people, would have been uselessly expended on the proprietors of foreign agricultural produce, and many fields of Great Britain and Ireland now cultivated, must in some measure have remained in their natural condition. Under the protection of the corn laws, another sixty millions sterling may in a few years be farther invested in railway undertakings, and this large sum will be circulating for years afterwards in an under current, and will continue most abundantly and most productively to employ the people until it be restored to the capitalist, with at least one hundred per cent. profit, and enable him again to enter into farther national improvements. At a late meeting of the Anti-Corn-Law Society, one of the members admitted that the chief obstacle to the progress of their principles was the difficulty which their agents experienced in convincing the labouring classes, whether in the agricultural or commercial employment, of the great distress under which they were suffering. The information, thus communicated to the productive classes, was entirely new to them, and the orator concluded by expressing his hopes and expectations that in a short time they would discover how very unhappy the corn laws made them, and would join in the chase of hunting them down. Their failure however in raising the steam on the subject of the corn laws in future, will be as signal as it has heretofore been, for the schoolmaster is daily making progress, and the people can see no reason for employing foreign lands and foreign men in raising food for them, which

they have abundantly the means of producing at home out of their own fields and by their own productive labour. They can discover no justifiable reason for the encouragement which is now given to emigration to the colonics, whilst millions of acres now in a state of nature can be rendered useful to the people at home, and afford food and employment to many thousands of the industrious heads of families. These benefits the corn laws must eventually bestow on the empire by the employment of the surplus capital, created by their means in further agricultural improvements. The new county of Victoria will rise out of the wastes in Norfolk and Lincolnshire, and millions of acres of excellent lands will be reclaimed from the morasses and rivers in Ireland. These will go forward hand in hand with new railways, and with manufacturing and trading improvements, until prosperity bestow on the empire all the advantages which can possibly attend the labours of industry, when prosecuted under a protective and beneficent system of legislature, of which the corn laws are the chief, although only one department. If these laws be at all defective, it is because they are not sufficiently protective to the revenue. The importation of foreign grain into this country is not more injurious to the agricultural interest than it is to the community at large. But, when circumstances render it necessary, it is but just that the foreign proprietors of it should pay at least as much towards the public expenditure as is imposed on the home growers, and that the latter should be protected in the same proportion, as the British manufacturers are protected against the goods of the foreign manufacturer. Presuming the mean value of wheat in this country to be 50s. per quarter, then a duty of 15s. per quarter on foreign wheat, when its admission into this country is rendered necessary, is equal only to the public charge on the importation of various articles of foreign manufacture. During the last month upwards of one million of quarters of foreign wheat has been admitted into consumption, at a duty of only 2s. 8d. per quarter, and by the working of the present corn laws, therefore, the revenue has lost somewhere about half a million sterling during that short period in the article of foreign wheat alone. We should like wonderfully to know how the manufacturers in this country would act if, by any chance, large quantities of foreign manufactured goods would be admitted into consumption here, on the payment of only nominal duties, and if the law sanctioned such an intrusion by foreign nations on the value of their property. It most fortunately happens, however, that the revenue, during the last three years, has suffered much more by this flaw in the corn laws than the agricultural interest, for the very superior quality of the home grown wheats this season renders them fully equal for milling purposes to old wheats, and they must of necessity command prices in proportion to their utility. This will, to a certain degree, make some recompense to our farmers for the want of that quantity of wheat in their possession which they ought now to hold from the growth of preceding years, nor can the consumers complain of the price of bread being higher in proportion than their rates of wages are. The price of wheat in every probability will continue to remunerate the home grower of it for his labour, capital, and talent, whilst the wages of labour here will also continue perfectly adequate to the price of the necessities of life. Sixty-five shillings per quarter

will probably be about the average value, and this is not nearly so dear as twenty-five shillings per quarter would be to the serfs in Poland, by whose labour grain is produced. They are paid by the smallest quantity possible of the produce of their own hands, and whether the great bulk of the crop in Poland be sold at high or at low prices, is not to them of the slightest consequence. Here the case is the reverse, for eventually the wages of labour must from necessity assort themselves to the expenses of living, the truck system of payment for labour being now most properly prohibited by law. This country was never, in the memory even of its history, so much depressed as she always is when the produce of the soil is under its intrinsic value. From 1822 to 1823 grain was in this state, and the want of employment then amongst the operatives was the necessary consequence of this depreciation, and of the alteration in the currency from a paper circulation to a metallic one. Wheat at 42s. per quarter in 1821 was far dearer than it is now at 70s., because circumstances had placed one half of the people on wages less than one half of the present rates, and had thrown the other half entirely out of employment. Now they generally are at full work, and wages correspond with the value of all the necessities, and of many of the luxuries, of life. To place the rewards of labour and the expense of living in this country on a level with those of the inhabitants of the corn districts in the Continent of Europe, as the corn law repealers profess to do, would confer no advantage on the productive classes, who can form a sufficiently just estimate of the state to which they would be reduced by a comparison of their present condition with that of the Coburg broom ladies, and the Italian image makers, who are hourly vending their handicraft in the streets of every town and village in the British empire. The present abundant wheat crop is of far greater importance to the community at large than any additional export demand for manufactured goods, in exchange for foreign grain, ever can be, in as far as it must very considerably increase the home consumption of every article of British and of Irish industry, for which the proprietors will receive far better and more advantageous payment than they can do by a foreign barter trade, and it may likewise enable the British farmers at the conclusion of the present corn season to hold over for future consumption such a quantity of this crop as may render the use of wheat for mixture with the new less necessary in future than the seasons of 1838 and 1839 have unfortunately made it at the present time; for the corn trade is neither healthy nor safe, unless our farmers and merchants hold, at the beginning of each corn year, five or six months' consumption of various descriptions of grain, the produce of previous harvests. Favourable seasons, like the present one, will again restore this state of things, but more than one is necessary to make up for the deficiency in the produce of two bad seasons. It is not improbable, therefore, that before next autumn a considerable quantity of foreign grain may still be required for our home consumption, and more money must be remitted for its payment, for it cannot be the means of causing any extraordinary foreign demand for British manufactures, or for anything else British, but still a continuation of large annual supplies of foreign food must be injurious to the best interests in the empire. During the last thirteen months, upwards of two millions and

half of quarters of foreign wheat alone have been entered for home consumption, in addition to which there has been upwards of half a million of barrels of foreign flour imported for similar purposes. Upwards of four millions sterling, in cash alone, must be the cost of these supplies to this country, independent of the large sums of money remitted abroad for all other descriptions of pulse and grain. This drain on our internal wealth cannot be perpetuated, and the remedy for it is very obvious. One million of acres of land, not now cultivated, may, by proper encouragement, produce the deficiency, even of an acknowledged unpropitious corn season, as that of 1839 most assuredly was. In the empire there are several millions of acres of land of the richest description, in a perfect state of nature. A few years' cropping would pay largely the annual income of capital even to any extent which may be embarked in their cultivation, and protection against the foreign proprietors of land in our markets is the only thing necessary to the prosecution of undertakings in every way so advantageous to the community. During this season, at all events, the prospects of our wheat-growers are so far favourable, that they hold out strong hopes that they will receive fair and remunerating prices for their present crops, and that some recompense will shortly be made to them for the loss of profits and property, which two bad seasons have visited them with. The present average price of 63s. per quarter in every probability will not be much reduced, and this will be a fair value for the growth of this wheat harvest season for both the producer and consumer.

The malting season not having as yet generally commenced, the Barley trade has not created much interest since our last publication, the supply of this article having been generally small, and the transactions in it equally limited. The few samples of the new crop which have already appeared in the market for sale have been of fine quality, and have given a good prognostic of the future. On all hands it is fully admitted that a better barley crop than the present one was scarcely ever produced in the United Kingdom. In quantity, for the breadth sown, it has turned out to be abundant, and in quality excellent. It now requires the usual preparation in the stack to malt in a superior manner, and the only thing needful afterwards for rendering it advantageous to the community, is an additional channel to the present ones for its profitable consumption. This, however, the law prohibits. The revenue collected on manufactured barley deprives the people of the full enjoyment of the bounty of a favourable barley season. The malt duty will again confine the consumption of barley for these purposes to about six millions of quarters, whereas, throughout the British empire, double that quantity would be only short allowance in beer for thirty millions of inhabitants. By the reduction of the malt duty from the present charge to one of a more moderate description, some degree of justice would be done to the people, and to the agricultural interest, whilst the Exchequer, so far from suffering from any loss in the malt duty, would eventually reap the benefit of an increased revenue from this source of taxation. To the labouring and industrious classes of society the reduction of the present high rates would be only an act of common justice. The fifth part of a quarter of malt is the present allowance to each of thirty millions of people, and assuredly, when con-

verted into beer, the smallness of such a quantity is a perfect mockery of human feeling. But this is not the only, nor is it the chief injury, which this heavy and consequently impolitic tax imposes on the community, for it partly places a bar to the cultivation of at least a million of acres of barley lands now in a state of nature, and consequently useless to the inhabitants of the British Empire. It discourages the investment of capital in agricultural improvements, and more particularly in those great undertakings, which have for their object the reclaiming of waste lands from the banks of our numerous rivers, and from the shores of many of our bays. We need have no surplus population as long as we can resort to productive labour of this most beneficial description, nor ought this law to compel the emigration of any portion of the people for the cultivation in the colonies of lands of a far wilder description, whilst so much land remains in a state of nature at home. To encourage the consumption of barley at home would in part render emigration, to its present extent at all events, unnecessary, but the reduction to moderate charges of the duties now charged on manufactured barley is absolutely necessary to the production of this important benefit. The very system by which the malt duty is charged and afterwards collected, is bad in as far as it presents a strong impediment to further improvement in the science of malting. The same excise regulations are applied to malting barley whatever may be its quality, and for whatever purpose it may be intended. The duty might be, and ought to be, collected by imposing it at once on the raw barley, instead of the present way in practice, and then the maltster would be enabled to use his science and his talents, in that manner which would produce that quality of malt, which is best adapted to the purposes for which it may be intended. To an alteration of this description there cannot be any well grounded obstacle, unless by the reduction of the number of Excise Officers, required under the present system, the Commissioners of that board might have some reason to complain of the necessity which it might occasion for the reduction of a considerable proportion of their patronage. That the consumption of barley for malting might be doubled no reasonable doubt can be entertained, and that the wealth created by the production of this additional quantity would do much more than pay for the expences of this additional consumption must be equally obvious to every mind capable of reflection. The impolicy of the charge in England of a duty of upwards of two hundred and fifty per cent. on the first cost of British made spirits is also as apparent, as is the detriment inflicted on the empire at large by the extravagant excise charges on malt. Duty on only 24 millions of gallons of home made spirits is now collected throughout the United Kingdom. In Ireland and Scotland, where the duty is moderate, the consumption is rather above 1 and one-third gallon by each individual; whilst in England, where the duty is exorbitant, the consumption is confined to little above half a gallon annually to each of the inhabitants, and consequently from eight to ten millions of gallons of spurious foreign spirits must be yearly smuggled into the country to make good this deficiency in the home manufactured spirits for the consumption of England alone. To suppress this nefarious and destructive trade, must be an object worth the best attention of an English finance minister, and the best, indeed the

only plan for effecting this great reform in morality is to give due encouragement to the home distiller by imposing on him fair and moderate duties. In our last number we took an opportunity to advert to the rapid improvements, which were in progress at a distillery in King Street, Snow Hill, and in various other rectifying establishments in London, in the science of brandy distillation. In wholesomeness these spirits are far superior to the great proportion of foreign brandies consumed in this country, nor are they inferior to them in flavour. If they were placed, with respect to duty, even on a level with foreign spirits consumed here, they would speedily supersede the consumption of foreign brandy altogether, being both more constitutional and more national, and thus they would be the means of annually increasing the nation's wealth by the retention of the money at present paid for foreign spirits within the empire, and by its profitable and patriotic application to farther agricultural, mining, and commercial internal improvements. The average duty paid on all descriptions of foreign spirits consumed within England is not nearly so high as is that paid on spirits manufactured at home; for although the duty on foreign spirits, legally imported, be about 23s. per gallon, yet actually the operations of the smuggler and the quantity illegally imported reduce it to less than one quarter of the presumed public charge. If the duty on home-made spirits was reduced to within moderate limits, the superior quality of British-made spirits, whether they assumed the character of whisky, brandy, or gin, would eventually render the importation of French brandies, even by the smugglers themselves, unprofitable, and thus all the evil consequences to the revenue and to public morality, which the existing system engenders, would be effectually removed. In 1826, when whisky was first legally admitted into England for consumption, the sale of it was quite as difficult as is that of British-made brandy at the present time, but its superior quality and wholesomeness by degrees gave it a decided preference over Geneva generally in the public estimation, and the same causes must from necessity produce similar effects in the consumption of brandy by the removal of the various obstacles which at the present period prevent brandies manufactured at home from superseding those of foreign origin. To render alterations of this description effective is the true way to promote the cause of temperance, which, like every virtue, stands as a medium between two extreme vices. Since the duty on home-made spirits was reduced to moderation in Ireland and Scotland, there is a most evident and extensive improvement in the manners and morals of the people; drunkenness and tee-totalism are rapidly disappearing, and temperance is gaining strength by the destruction of its two extreme evils. Let the English spirit duty be only placed on a level with that charged in Ireland and Scotland, and then temperance will hourly receive strength in England from similar causes; and, what will be equally important in the estimation of the Chancellor of the Exchequer, the revenue now raised on spirits, whether they be British or foreign, must be very much increased, the value of landed property will be proportionately increased, and a great addition will be made to the wages of the industrious, and generally to the comforts of the great majority of the people.

The deliveries of oats of home growth, have during the month of September, been uncommonly

small, but large importations of foreign have rendered the supply fully equal to the consumption. The large deficiency in the last year's crop of this article, has been the cause therefore of large remittances of money to the Continent in payment for these oats having been rendered necessary, and the export trade of British manufactures, nor indeed of any thing else has not been in any measure increased by this admission of foreign oats into our markets for home consumption. In Ireland the failure in the last two crops, more particularly in the oat one, was far more serious than it was in Great Britain, and the effects of it have rather severely fallen on the inhabitants generally of that portion of the British empire, in as far as they have, for a season at all events, prevented farther internal improvements both in commerce and in agriculture. This most propitious harvest however will go far to remedy the evil consequences of the two last ones, for the produce of oats will be most abundant, and in every probability the importation of this article from foreign countries will be soon rendered unprofitable and consequently unnecessary. The export to Great Britain of the surplus of the Irish oat crop will probably be the means of preventing any influx of foreign oats into our markets for some time to come, and the money which, under less favourable circumstances would have been paid to foreign states for our supplies, will continue in circulation at home amongst our farmers, artisans and operative labourers, to whom it will be the means of increasing the amount of productive labour and consequently the wages to be paid for it. It has often been our duty to allude to the vast field for national improvement, which the entire face of Ireland presents to the public view, and capital is the only thing now wanted to render many of these undertakings most advantageous, not only to those actually engaged in them, but to the community at large. By draining the banks of the river Slaney for instance, not only may a safe channel be opened to the large town of Wexford, but also upwards of forty thousand acres of rich arable land may be speedily rendered available to the wants of the people. This is no speculation, for it has been already partially reduced to practice. Some years ago an enterprising officer drained, though not on the best principle, about five hundred acres from these wastes. His first crop was rapeseed, his second beans, his third potatoes, and his fourth oats. The produce of all these was abundant, particularly the last, which yielded twelve quarters of the finest quality to each English acre, and similar large crops may, for half a century at least, be obtained from the same land without incurring any additional expense for the purposes of manure, or for anything else beyond the expenses of tillage itself. The banks of Lough's Foyle and Swilly, of the Shannon, and of many other rivers and morasses, may, by the labour of mankind, be turned from barrenness into productiveness, and on them capital may for ages give most productive employment to what is now called, very improperly, the surplus population. In fact by duly encouraging by protective legislature enactments, the industry of the country generally, and more particularly that of agriculture, most important results must ensue to the real prosperity and true strength of the United Kingdom. A free corn trade would soon draw from the country all her transportable greatness. Her treasures would speedily be transported to the grain districts on the continents of Europe and America, and the most enterprising of her people would be compelled to emigrate to the colonies to bring into cultivation lands there, which are in a far

greater state of desolation generally, than are the wildest spots in any part of the United Kingdom. Had the ten millions sterling, which during the last three years have been remitted to foreign nations in payment for foreign grain, been, by any possibility retained at home, we would have saved a sum, which, if applied to agricultural improvements at home, would have even already been affording living wages to many industrious families, and in a few years afterwards would have been producing a large addition to our present supplies of home grown food of every description, and leading us gradually to the position to which, under corn laws really protective, we must arrive eventually, of becoming a large exporting country of agricultural produce. The abundance of the present oat crop, and the superiority of its quality, must be of great advantage to Ireland herself, and will give encouragement to the cultivation of still larger districts of land, so long as by the exclusion of foreign oats from the British markets, fair prices can be obtained for those grown at home. Some samples of the new oat crop have during the last month appeared in several markets for sale, the quality of which is unusually fine, particularly those grown in Scotland, from whence the South will be more liberally supplied than it has been for the last two corn seasons. Upon the whole the crop of oats is universally well spoken of, and the trade in this article has at all events a favourable prospect. Quality will secure a ready sale, and quantity will render prices so moderate, that any competition of the foreign proprietors of foreign oats can not be made with the most distant prospect of advantage to themselves or of detriment to the farmers, who prosecute this department of agricultural labour at home, and who this season will receive fair remunerating prices for their property.

The supplies of beans and peas of home growth have continued during the last month limited in their amount, but the deficiency has been amply made good by foreign importation, the former at the lowest rate of duty, and the latter at the nominal duty of 3s. 6d. per quarter. Not much activity however has been manifested in this department of the corn trade, but when the new crop of pulse comes more freely to market than it hitherto has done, the demand will increase in proportion to the supply, but as the quality generally of both descriptions is fine, the general opinion is that prices during the season will continue to remunerate the home producers.

By the last arrivals we are informed that all the foreign markets for the exportation of foreign agricultural productions continued to be regulated by the advices previously received from the Corn Exchange in Mark Lane. From the United States in North America, the letters received are dated in the first week of last month, at which period the prospects of a market for the supplies of the crops were not very encouraging, and the sales of wheat and flour were becoming rather difficult, even at a small decline in prices. The quotations received from Mark Lane were not so much the cause of this dullness, as was the uncertainty of the duties to be charged here on importation for home consumption. The agriculturists and the corn merchants throughout the union complained heavily of the injury done to their interests by our corn laws, considering it anti-liberal that our farmers should receive any legal protection to their property in our home markets of consumption. In that republic the wheat crop is an abundant one, and has been secured generally in excellent condition, and to feed our population with the surplus of it, to the extent of forty millions of dollars,

the sacrifice of our own agricultural interest is considered by our brethren of very minor importance. In May and June next the duty however may probably be lower here than it is just now, and no doubt purchases will be made, when prices in America become more moderate, with a view to this market, during the coming summer months. Perhaps in the meantime to encourage the free trade principle, the Americans will reduce the almost prohibiting duties now levied by them on the importation of British woollen goods, and indeed on every description of British manufactures into their country for the consumption of the American people. They should surely set some example of liberality before us previous to complaining so loudly of our protective system in favour of our internal, commercial, and agricultural pursuits. From the south of Europe the information received in due course of post is of the same description as that received from the United States, and the complaints against our corn duties are equally violent. In France the crop of wheat is large, and the demand therefore in the Mediterranean and in the Black Seas, with a view to that market, has been, and probably will continue during the corn year, to be dull and uninteresting, thereby rendering the British markets still more desirable to the corn proprietors in those districts, than they were previously, and causing our corn laws to be more complained of than they had been during the last two years. From the Baltic and ports without the Baltic, the corn news bears a similar complexion. The quality of the new Polish wheats is excellent, and the crops have been large; indeed, if we look around us, we are persuaded that agricultural food may be obtained, of foreign growth and of foreign labour, which may, in a part, supersede the consumption of our own crops, and may save our farmers and our labourers the trouble of cultivating our own fields to that extent which our protective corn laws at present encourage and render necessary. Such an event however, would in a few years be followed by consequences ruinous to all interests in the United Kingdom, and destructive to her wealth, prosperity, and national greatness.

CURRENCY PER IMPERIAL MEASURE.

SEPT. 28.

WHEAT, Essex & Kent, red, old	58	60	White....	00	74
New	54	66	Do.	56	74
Norfolk and Suffolk	54	64	Do.	58	72
RYE				36	40
BUCK WHEAT				—	—
BARLEY, Chevallier, new.....	40	42	Malting ..	33	38
Distilling	33	36	Grinding..	28	30
Scotch			Irish.....	—	—
MALT, Brown.....	50	58	Pale Suffolk & Norfolk	60	65
Ware pale.....	62	67	Chevallier..	60	68
OATS, English, feed	27	30	Potato, &c.	28	31
Irish, Youghall & Cork, bk.	24	26	Cork, white	24	27
Dublin.....	25	27	Westport..	26	30
Clonmel	25	28	Limerick..	27	30
Londonderry	26	28	Sligo.....	27	30
Newry	27	30	Galway....	21	25
Waterford	25	28	Ballina...	26	29
Scotch, feed	27	31	Potato....	30	32
PEAS, white, Essex and Kent, bolters				42	43
Do. fine Suffolk				42	44
Do. do. extra				44	45
Do. foreign				41	43
Do. non-bolters				40	43
Maple				41	43
Grey or Hog				41	42
Blue				48	50
BEANS, Tick	new 36	40		43	45
Harrow.....	" 40	42		44	46
Pigeon	" 42	44		44	48
Mazagan				42	44
Longpods	38	42	Windsor	47	67
FLOUR, Town-made and first country marks, per sack	58	62			
Norfolk and Suffolk				48	50
Stockton and Yorkshire				48	50

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, Sept. 25th, 1840.

	s.	d.		s.	d.
WHEAT	64	2	WHEAT	71	1
BARLEY	36	8	BARLEY	40	4
OATS	25	10	OATS	28	10
RYE	30	8	RYE	38	3
BEANS	45	6	BEANS	44	7
PEAS	42	6	PEAS	43	5

IMPERIAL AVERAGES.

Week ending	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
August 14th ..	72 4	32 4	30 5	40 46	11 44	8 4
21st ..	72 7	33 4	30 6	38 11	47 0	43 7
28th ..	72 4	34 11	30 7	38 5	47 5	45 4
Sept. 4th ..	68 11	34 8	30 6	38 6	47 3	44 5
11th ..	65 4	35 3	28 7	38 8	47 0	44 2
18th ..	64 2	36 8	25 10	39 8	45 0	42 6
Aggregate Average of the six weeks which regulates the duty.....	69 3	34 6	29 5	39 4	46 10	44 1
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London	13 8	10 10	3 3	11 0	1 0	3 6
Do. on grain from British possessions out of Europe.....	0 6	2 6	3 6	0 6	0 6	0 0

Account shewing the Quantities of Grain, Meal and Flour, imported into the United Kingdom, during the month ended the 5th Sept., 1840; the Quantities on which Duties have been paid for Home Consumption during the same month, and the Quantities remaining in Warehouse at the close thereof.

Foreign Grain and Flour.	Quantity Imported.	Quantity entered for consumption.	Quantity remaining in warehouse.
	qrs. bush.	qrs. bush.	qrs. bush.
Wheat, from British Possessions	975 1	975 1	2673 0
Wheat, foreign	292065 1	361481 0	040222 0
Barley, do.	14731 2	1557 5	37444 1
Oats, do.	142095 5	122810 1	111277 4
Rye, do.	58 6	30 1	3806 4
Peas, do.	19565 6	30506 3	25090 0
Beans, do.	15039 2	38412 2	3131 2
Indian Corn, do.	801 1	763 0	71 3
Buck Wheat, do. ....	....	....	....
Malt, do. ....	....	....	....
	cwts. qrs. lbs.	cwts. qrs. lbs.	cwts. qrs. lbs.
Flour, from British Possessions	58080 0 4	58510 3 14	15 1 14
Flour, foreign.....	65331 2 1	178041 2 8	100087 0 13

PRICES OF HOPS.

BOROUGH, Sept. 28.

Choice pockets of this year's growth fetch high prices, viz., 17l. 17s. to 18l. 18s., and for some superior East Kent, 20l. per cwt. Hops of the growth of 1838 and 1839, have fallen 10s. per cwt., and old olds 5s. per cwt., and dull of sale. Duty 30,000l.

	E. Kent.	M. Kent.	Weald of Kent.	Sussex.	Farnham.
	s.	s.	s.	s.	s.
Bags, 1836	55 to 75	55 to 75	55 to 65	to ..	..
Pocks, 1836	75 .. 85	55 .. 85	55 .. 70	55 .. 75	..
Bags, 1837	none	none	none	none	..
Pocks, 1837 .....	..	..	..	..	..
Bags, 1838	90 .. 110	93 .. 116	90 .. 102	..	..
Pocks, 1838	102 .. 130	100 .. 130	102 .. 116	90 .. 110	..
Bags, 1839	150 .. 190	150 .. 190	130 .. 150	..	..
Pocks, 1839	100 .. 230	100 .. 230	170 .. 190	150 .. 100	..

HOPS.—(FROM AN INTELLIGENT AND VALUED CORRESPONDENT.)—During the failure in 1823 of the hop crop, I was so situated that I had an opportunity of walking through a good many of the plantations in the Worcester district, and from conversations I held with various growers, I was very much surprised to find that no one seemed to have any idea what was the real cause of the failure in the growth; for although it was certainly occasionally wet and dull weather, for the season of the year, it was not very remarkably so, for I walked many miles day after day, and never got wet; the difficulty of obtaining information led me into a train of thinking on the subject, and I will communicate the result of my conclusions, which is simply this, that if wet sets in before the picking of hops is finished, the previous year, and continues in such a degree as to cause floods in the low lands, above a dozen times, the bine gets chilled, and causes the like effect that inhaling too much moisture from damp does on the human frame, progressive consumption! Now last year, where I resided, we had upwards of thirty floods, and I do not remember so many since the years 1824, 1827, and 1828, all of which were followed by failure in the following years, and on the 10th of September, 1822, the water was so out in the lowlands in Gloucestershire and Worcestershire, that it very nearly floated my horse and gig, as I passed through it between the towns of Tewkesbury and Pershore, and that year continued wet to the end, and on the 23d of January, 1823, the frost was so severe, that passengers by coaches were frozen to death by daylight; and on the 25th, such a fall of snow followed, that on thawing at the end of a week, it again flooded the country. Now to convince you how much my observations have influenced my feelings, I assured a person who held a few hops the early part of June this year, that although then the duty was called from the then appearance, from 135,000l. to 140,000l., that I did not think it would pay 25,000l., and the result has proved my observation to be tolerably correct. There is another singular circumstance to name, and that is, that failure follows from the very opposite cause, a too dry season; as for instance, the fall of 1811, when no doubt you will remember the great heat occasioned by the Comet, up to March, 1812, and during which period we had so little wet, that neither top-coat nor umbrella was required! But it may be asked, why some gardens should produce 1800 burs an acre, while others do not produce anything? The reason is obvious—their sheltered situation. I was staggered in July by being shown hops gathered the previous day, until told where they grew, and singular to add, I then stated, that if hops grew any where, it would be about Aylesford (near where these I speak of were gathered), a place so sheltered from all winds and aspects but the south, and so peculiarly drained from wet, that I then said, if hops grow anywhere, it will be there, about Witham, and near to Boughton-hill, on the Canterbury side (places I have not seen but once for the last 25 years), although of course at one time acquainted with them and their situation.

DUTY.

1802, £15,463 10 5½	Fall of 1801 wet, water much out in winter.
1805, 32,004 12 7½	Floods high in Dec. 1804 (about 18th and 19th) and through winter.
1809, 63,452 18 2	Floods and heavy falls of snow from Dec. 1808, to Feb. and April, 1809.
1810, 73,514 6 11½	Floods, but not so heavy as previous year.
1812, 30,561 19 3½	No rain, but excessive heat from Sept. 1811 to March, 1812.
1816, 46,302 5 9½	Great drought up to Sept. 15th or 16th, 1815, after which excessive rain all 1816.
1817, 66,522 2 5½	A tremendous hurricane destroyed nearly all the Hops in Sept.
1823, 20,050 13 4½	Floods from beginning to end of Sept. 1822, and continued on after frost, 1823.
1825, 24,317 0 0½	Floods, more or less, after a thunder storm, 17th July, 1824, up to the spring, after which it was excessively hot through the summer, particularly so from 16th to 21st July, 1825; the 19th equal to Tropical climates!

1828 and 1829, Both small duties, after a long continuance of wet for three successive summers.
1840, A general failure; the Navigation from London to Reading suspended from the end of the year 1839, to some time in Feb., from floods on the Thames and Kennet Rivers, and the Avon from Bristol.—*Reading Mercury.*

From all the Hop districts we learn they are finishing the picking for this season. The quantity weighed at the scale proves far less than what was formerly estimated, previous to picking. In East, as well as Mid-Kent, some few fine samples are produced, and high rates are made on the market; 20l. per cwt. has been refused in several instances in these fortunate districts; doubtless much more will be made by the middle of November next, when the actual duty will be declared. It is a singular fact, that Mid and East Kent, this year, produced some as fine Hops in quality as ever have been grown, and that in all other quarters the Hops are wanting in condition.

SEED MARKET.

SEPT. 28.

We had rather a large show of Canary seed to-day and a considerable fall in prices took place, the best parcels being offered at about 84s. per qr. There were not many winter tares offering, still the value of the article had rather a downward tendency. For fine Caraway seed there was rather more enquiry, no advance could however be established on former prices. In other articles, no alteration worth reporting took place.

Linsed, English, sowing	55	60			
Baltic	—	—	crusling	48	55 per qr.
Mediter. & Odessa	48	56			
Hempseed, small	34	36	large	38	40
Coriander	10	16	obl.	18	— per cwt.
Mustard, brown, new	14	21	white	12	13 pr. bush.
Tarnip Seed, new Swedes	—	—		10	15
Trerfoil	10	23	fine new	25	30
Rapeseed, English	30l.	32l.	foreign, 28l.	30l.	per last.
Rye Grass, English	30	42	Scotch	18	40
Tares, winter	9	11	Spring	—	—
Large, foreign	7s.	6d.	8s. obl.		
Clover, English, red	50	60	white	48	60 per cwt
Flemish	40	60	do.	45	48
New Humbergh	52	58	do.	46	60
Old do.	55	50	do.	—	—
French	50	56	do.	—	—
Old do.	40	50			
Canary, new	78	80	extra	84	
Caraway, old	50	53	new	50	52

WOOL MARKETS.

BRITISH.

SEPT. 28.

There has been less business done this week than for some weeks past. Both the dealers and the manufacturers seem alike devoid of any spirit to buy more than they stand in immediate need of. Our transatlantic and continental relations continue in the same unsettled state, and are not likely to operate on the trade advantageously for some time to come.

	s.	d.	s.	d.
Down Teggs	1	2	to 1	2½
Half-bred Hogs	1	1½	1	2½
Ewes and Wethers	0	11½	1	0
Flannel do.	1	0	1	2
Blanket Wool	0	5	0	8
Skin, Combing	0	10	1	2

EXETER.—In this market the improved appearance of the preceding week could scarcely be said to be retained, while to the alteration it is not improbable the warlike intelligence from day to day presented to us had in no small degree contributed. Nor can we quote York Wool higher than 84d. per lb. Washed Wools are—Knot Wool, from 104d. to 114d. per lb.; Dorset Horn, 12d. to 12½d.; Marsh Wool, 12d. to 12½d. per lb. Sorts.—Fell Wools—Coarse, 6½d. to 6¾d.; Broad Head, 7d.; Kent Head, 7½d. to 8½d.; fine Head and Lamb, 10d. to 10½d.; Short Fell Combing, 9d. to 9½d.; old Skin Combing, 10d. to 11d. per lb. Fleece Wools

—Short Coarse, 7d. to 7½d.; Red and Pinions, 8½d. to 9d.; Green, 10d. to 10½d.; Cornish Stripe, 12d. to 12½d.; North Devon Stripe, 12½d. to 12¾d. per lb. Tops, 16½d. to 17d.

DUBLIN.—The transactions this week in fleece wool have been very limited, and there is evidently a heaviness over the market; in prices there is little or no alteration from last week's report.

LIVERPOOL, Sept. 26.

SCOTCH.—There continues to be a very good demand for Laid Highland Wool at our quotations. In Cross and Cheviot there is rather more doing at full prices, though we cannot quote any advance.

	s.	d.	s.	d.
Laid Highland Wool, per 24 lbs.	7	6	to 8	0
White do.	9	0	11	0
Laid Crossed do. unwashed	8	6	9	6
Do. washed do.	9	0	10	6
Do. Cheviot unwashed do.	9	0	19	6
Do. washed	11	6	15	0
Cheviot white	21	0	24	0

FOREIGN.

THE WOOL TRADE.—CITY, SATURDAY EVENING.—Domestic wools are now becoming in more demand, and for foreign also the inquiry has increased. The large auctions of colonial wool to commence on the 29th instant, are looked forward to with much interest, as it will be recollected that the prices realised at the last public sales were not quite so good as had been anticipated. It is estimated that when the declarations are completed there will be about 10,000 bales to offer.

The imports of wool into the port of London since this day have been 3146 bales, of which 813 were from Africa, 728 from Germany, 169 from the East Indies, 603 from Turkey, 751 from Sydney, 50 from South America, and 32 from Russia.

At the Frankfort autumn fair, raw wool had been sold to some extent, but the producers were by no means satisfied with the prices realised.

At Lille in France, a brisk demand is arising for English twist and woollen stuffs à l'écoissaise.

The prices of foreign Wools, notwithstanding that upwards of 10,000 packages of colonial are appointed for public sale, at Garraways, the latter end of this and the beginning of next week, have still an upward tendency, and some extensive sales have been lately concluded.

Wool on which the Home Consumption Duties have been paid at London, Liverpool, Bristol, and Hull, during the last week:—

WOOL.	This Year previous to last week.	Same time in the last Year.
Spanish, London ... lbs.	1,204,230	1,328,588
Australian, do.	9,883,652	9,998,041
Other sorts, do.	9,438,488	10,276,731
Liverpool	8,282,060	8,087,901
Bristol	147,606	23,300
Hull	9,168,274	13,238,829

MANURES.

Subjoined are the present prices of several sorts of manure:—

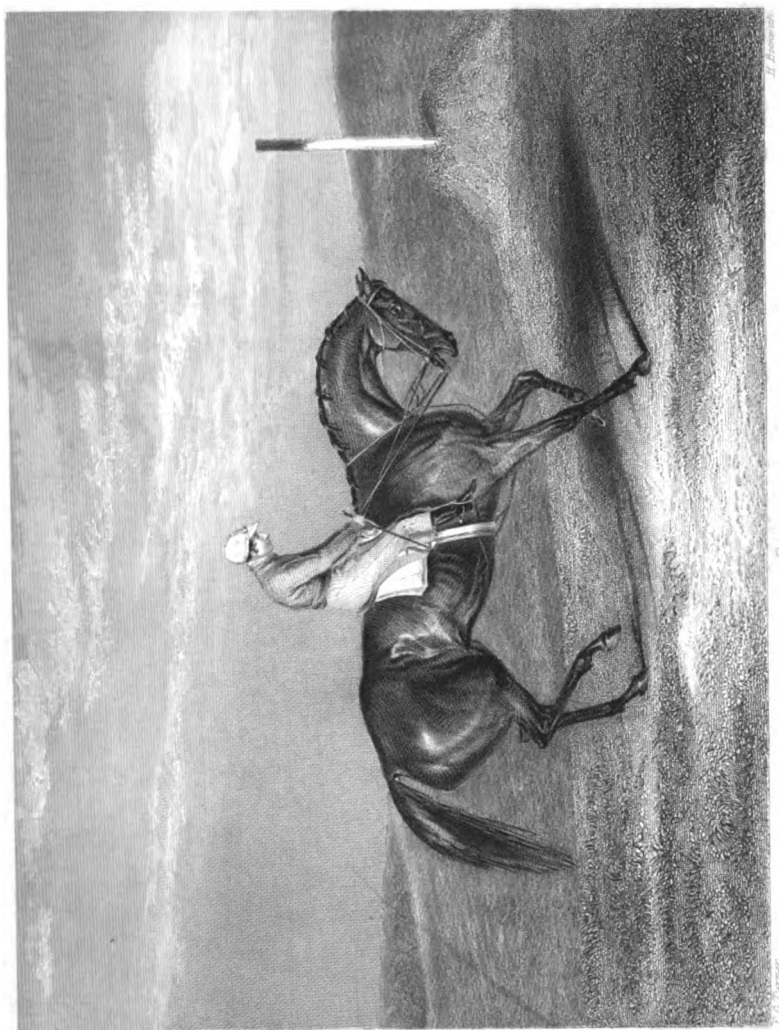
Bone-dust, 21s. per qr. of 8 bushels.
Half-inch ditto, 20s. per qr. do.
Rape-dust, 6l. 15s. per ton.
Rags, 4l. to 4l. 10s. per ton.
Graves, 5l. to 5l. 10s. per ton.
Gypsum, 38s. per ton.
Salt, 2l. 5s. dirty, 2l. 15s. clean, per ton.
Carbon, 12s. 6d. per qr.
Soap ashes, 10s. per ton.
Artificial Manure, 12s. per qr.
Pottevin's Patent Disinfected Manure, 13s. 6d. per qr.
Nitrate of Soda, per cwt.—18s. 6d.
Nitrate of Potash or Saltpetre, 27s. to 28s. 6d. per cwt



*Shepherd with his flock, 1809. Oil on canvas, 10 1/2 x 14 1/2 inches.
 when a flock of 1000 were seen in the neighbourhood of the house, and a number of the flock were seen in the field, to the right.*







THE FARMER'S MAGAZINE.

NOVEMBER, 1840.

No. 5.—VOL. II.]

[SECOND SERIES.

PLATE I.

The Sheep, the subject of the Plate, are of the Leicester breed; were bred by Thomas Inskip, Esq., of Marston, Bedfordshire, and exhibited by him at the Meeting of the Royal Agricultural Society at Cambridge. A Premium of Ten Sovereigns was awarded to Mr. Inskip as the exhibitor of the best pen of five ewes with their lambs. They were considered to be an excellent specimen of the *true* Leicester breed.

PLATE II.

CRUCIFIX—WINNER OF THE OAKS, 1840.

(For Description see page 326.)

FIRST ANNUAL REPORT OF THE GROVE FERRY FARMER'S CLUB,

WICKHAMBREAUX, COUNTY KENT.

GENTLEMEN,—As your committee we have considered it to be our duty to draw up a report of the proceedings of the past year, and lay before you the minutes of the various subjects which have been discussed by you, since we formed ourselves into an agricultural society. And we trust, Gentlemen, you will bear in mind, while perusing the following minutes, that the great object of this, as well as that of all other societies of the same kind, is not to make a sudden and wonderful change in agriculture, but to glean from practical experience such information as will enable us to improve our land and mode of cultivation, in the best and cheapest manner possible.

FIRST MEETING, Nov. 21st., 1839,

Was entirely taken up in electing the officers and Committee, and in forming a set of rules for the regulation of the club.

SECOND MEETING, Dec. 18.

The best method of wintering Lambs was brought before the meeting for discussion, by a member who had been a sufferer to a considerable extent by losing a number of lambs every year during the winter months; he said he yarded them, and run them into a pasture frequently, with several other experiments, all of which had failed; he was still anxious to try other experiments, and if the meeting could suggest a system likely to be of any benefit to him in wintering his lambs, he would unquestionably adopt it.

OLD SERIES.]

Several members argued in favour of folding lambs on turnips, but the majority were in favour of yarding them, cutting their turnips with one of Gardener's turnip-cutting machines, as well as cutting their fodder and introducing a portion of common salt with it.

The next subject discussed was, "Whether the subsoil plough might not be introduced with advantage into this district, and which kind of subsoil plough was best adapted for the purpose?" The party introducing the subject being totally unacquainted with subsoil ploughing, put the question entirely into the hands of the meeting, none of whom, it appeared, had ever subsoil ploughed any land, but from what they had seen, and heard, strongly recommended it, on different kinds of soil, such as poor chalky land, hot burning gravels, and wet heavy lands in many instances had received great benefit from it.

THIRD MEETING, Jan. 16th, 1840.

"The best method of draining marsh and other land." On this subject (which is of so much importance to the farmer and grazier, as by effectual draining he can convert land that formerly was considered useless, into the most profitable,) a spirited discussion arose, each party considering his mode of draining the most effectual and cheapest. The various modes of draining, however, were fully discussed, when the majority of the meeting were in favour of the drains laid on a sole made of flat tile, and covered with broken stones and turf to the depth of six inches. The cheapest method of draining introduced to the meeting, was done with a mole drain plough, worked by a lever and two horses.

2 B

[No. 5.—VOL. XIII.

Another subject then came under discussion, viz., "The best and cheapest method of storing turnips." Many different ways of storing turnips were laid before the meeting; when required for the spring use, the best method introduced was to have them drawn carefully with what is termed a turnip-picker, and carted to a convenient meadow, and set as closely together, with the roots downwards, as possible; by so doing they require but little room, and will keep quite fresh till the spring. When required to use during the winter, it is necessary they should be kept from the frost, otherwise when most wanted, would be too much frozen to use; in this case it was recommended to lay them in ridges, and thatch them with straw, and, at intervals, put in a bundle of straw to act as a chimney, to carry off any heat that may arise from their confinement.

FOURTH MEETING, Feb. 20th.

"The cheapest and best method of keeping a team of cart-horses." This subject being one of the heaviest expenses a farmer has to contend with, called forth much information, and many practical statements. But as the meeting were unable to come to a satisfactory conclusion, it was agreed that this subject should stand open for future discussion.

"The best sort of barley to be grown in this district, and the best method of cultivating it" was next introduced, and the qualities of the different sorts of barley taken into consideration, as well as the best method of preparing the land for its reception before the following report was drawn up.

Report:—The evidence given this evening strongly recommends, in preparing land for barley, to get it ploughed as early as possible, so that it may be balked, or otherwise stirred, as the soil may require to get a season, and that the Chevalier barley is the best sort yet known for this district.

The CHAIRMAN proposed that, having dispensed with the foregoing subjects earlier than usual, that they might without intruding on the time allotted by the rules, discuss a third subject. Consequently another subject was introduced, viz., "The best mode of using lime as a manure." On the use of lime as a manure, it was contended that it was of very little service on stale land, but on fresh broken up land, and on clover leys, it was found to be of great benefit, as lime requires to have something to act on. When mixed with mould, lime was proved to be an excellent manure for pastures, sheep always preferring the grass that had been so dressed.

Report: It is the unanimous opinion of this meeting that lime is a valuable manure when used on a soil where there exists a vegetable matter for it to act on, but on the contrary it is of little or no use.

SPECIAL MEETING, March 11th,

For the purpose of sending a petition to Parliament to oppose a motion of Mr. Villiers to be brought before the House of Commons for the repeal of the corn laws, which petition was unanimously signed.

FIFTH MEETING, March 19th.

"The best method of planting fruit trees" being introduced, brought several gentlemen, who are large fruit growers, into a lengthened discussion, after which the following report was agreed on.

Report: This meeting recommend the following system of planting fruit trees:—Dig the holes two feet deep and four in diameter, to be paved with stones to act as a drain, as well as causing the roots of the tree to turn towards the upper and richer soil, thereby receiving the benefit of the sun, the most essential thing in producing rich fruit, and that the best time for planting is in the month of November.

The next subject was "The best breed of hogs, and who possesses that breed which will fatten in the shortest time." This subject naturally called forth a strong competition, each competitor thinking his or his friend's breed the best, which was decided by the following:

Report: This meeting in forming a report of who possesses the best breed of hogs, are decidedly in favour of Mr. Wachter's breed, he having killed a hog weighing 20 score, 8lbs. at the age of nine months and two weeks, and frequently killed hogs weighing 35 score and upwards.

SIXTH MEETING, April 16th.

At this meeting "The best mode of hog fattening" was introduced, and after a great many different statements being produced, all of which varied too much for the meeting to come to a satisfactory discussion, unanimously resolved to adjourn the subject to a future meeting, at the same time requesting each member to endeavour to get a practical statement of the information sought.

"The properties of salt as a manure, and the benefit to be derived from it when given to cattle" was next laid before the meeting. The opinions expressed on this subject so well agreed, that the following report embraces all the evidence given, and the conclusion arrived at.

Report: In drawing up a report on the properties of salt as a manure, and the benefit to be derived from it when given to cattle, this meeting is of opinion that salt is of great use when applied on light soils, in proper proportions; but is not of much use when put on heavy lands, and of the benefit to be derived from it when given to cattle, they are unanimously of opinion that it is an indispensable medicine for all kinds of cattle, especially when given to lambs during the winter months, to cure scouring and prevent rot.

SEVENTH MEETING, May 14th.

"On the best mode of making manure." On this subject, which requires the farmer's attention more than any other, for on it depends, in a measure, the result of his yearly labours, much information was elicited, and many statements from practical farmers of different soils, laid before the meeting, when the following report was unanimously agreed to.

Report: This meeting after a long investigation of the subject "on the best mode of making manure," are unanimously of opinion, that different soils require a different mode of making manure. For instance, heavy soils require long manure, others require it made into mixens to get more rotted, and consequently shorter; they at the same time recommend that the yard should be paid great attention to, so that the bottom will not contain too much water, or allow it all to flow away, but to be moderately concave; they are likewise of opinion that the mixens require much attention, care being taken that the ammonia does not escape by evaporation, it being so essential to the nourishment of plants.

The next subject introduced was the best mode of cultivating the potato, on which subject many different modes of cultivation were laid before the meeting, from which the following report is drawn:—

Report: This meeting is unanimously of opinion that the best mode of cultivating the potato is to dung the land on the surface, which plough in, taking care to get as light a season as possible; then strike the furrows with a plough fitted for that purpose, after which drop the potatoes in the furrows whole, as they find by experience, that better crops are obtained by that system than when cut, especially

in dry summers, and that they require to be buried in the soil as lightly as possible.

At this meeting, Sir Brook W. Bridges, who is a member of the club, presented it with the Quarterly Journal of Agriculture, from the commencement, handsomely bound, for which the members ordered the Secretary to return him their vote of thanks.

EIGHTH MEETING, June 11th.

At this meeting "The best method of laying down land for permanent pasture, and the season of the year most favourable for the operation, as well as the best method of managing the hop in the field and oat;" on both of which subjects a warm debate arose, but as no satisfactory conclusion could be arrived at, the meeting resolved that both subjects should stand open for future discussion.

NINTH MEETING, July 16th.

The subject of the best breed of horses for agricultural purposes was discussed at this meeting, and the following report drawn up:—

Report: This meeting, after having discussed the qualities of the various breeds of horses brought into this county for agricultural purposes, are decidedly in favour of the Lincolnshire horse, considering him in every way better adapted to this county than any other breed yet introduced.

The second subject introduced was "The best mode of curing the epidemic so prevalent amongst cattle," which subject was discussed by members who had been sufferers to a great extent with the disease, and after a lengthened discussion, the following report was agreed on:—

Report: The remedy recommended for the epidemic amongst cattle, by this meeting, is to give the animal immediately attacked, 1lb. of Epsom salts; if not effectual, to be repeated the third day; if very bad, should be bled; common salt should be thrown into the mouth, when the tongue is diseased; care should likewise be taken to remove the beast from any other cloven-footed animal, immediately attacked, on account of its very infectious character.

TENTH MEETING, August 13th.

This meeting, occurring in the midst of harvest, was thinly attended by members; the subjects therefore proposed for the evening discussion were not introduced, but adjourned to the next monthly meeting.

ELEVENTH MEETING, Sept. 10th.

This meeting, like the last, occurred in a very busy time, namely, bopping, therefore no business could be properly entered into on account of the few members that attended, and the subjects consequently adjourned to the October meeting.

TWELFTH MEETING, Oct. 8th.

This meeting, the last of the year, was well attended by members, who entered into the subject of the best rotation of cropping, in a spirited and business-like manner, some advocating the six, some the seven, others the eight and nine tilth system, while another preferred the round tilth, but the general opinion was in favour of the seven and eight tilth farming, that being best adapted to the medium soil of this neighbourhood. The subject was discussed to a late hour, when the following report was laid before the meeting, who were unanimous for its adoption:—

Report: It is the opinion of this meeting, that to adopt a judicious rotation of cropping for every soil, requires a great deal of judgment in the farmer, which can only be gathered from observation and practical experience; but the rotation that will suit

the medium soil of this neighbourhood, such as first fallow with turnips, second barley, third beans, fourth wheat, fifth clover, sixth wheat, and seventh oats, is a system founded on principles that will ensure a full return from the soil, without lessening its value, or impoverishing its condition. They consider, however, more depends on the manner in which the different processes are executed, as the best rotation if badly executed, will be of no avail.

Having thus briefly laid before you the minutes of the proceedings of the past year, your committee hail with much pleasure the last meeting, when they see their anticipations of the result of the club so fully borne out. The meeting together of men employed in one common pursuit, must tend to draw forth that practical information which each is in possession of, and agriculture, above all other pursuits, demands an institution of this kind: first, because its members are scattered so widely apart, consequently know little of each other's mode of management; secondly, because the science of agriculture is daily progressing through all its extensive branches, and requires all the attention one can give to it, to obtain a competent knowledge even of its minor details. And, gentlemen, we feel assured that if you have felt a source of pleasure in taking part in the various subjects brought under your notice during the past year, you must, in like manner, have been much gratified in perusing the valuable works selected by yourselves that constitute our library.

Your committee congratulate you on the great increase which has been made to your numbers, and trust that the Grove Ferry Farmers' Club will go on prosperously year after year, and that it ultimately may be said to have gained the end for which it was established, which can only be done by each member readily coming forward and adding to the general stock of information, through the fruits of his experience.—For the Committee,

THOS. SLATER,

Hon. Secretary.

Preston, next Wingham, Kent.

REVIEW.

A TREATISE ON AGRICULTURE AND DAIRY HUSBANDRY.

By JAMES JACKSON.

(Peoples' Edition, Edinburgh, Chambers, pp. 116.)

In the present age of cheap literature it has seemed surprising that it should be almost exclusively confined to imaginative works—to standard divinity and physical science—while nothing of a similar character has hitherto been attempted connected with the science of agriculture. That we have works of sterling excellence, and works, too, which with a little editorial revision are still standard, few will have the hardihood to deny, and still up to the present time not one cheap popular reprint has come out. A remedy is now, however, proposed to be supplied in the shape of an original work by "Mr. James Jackson, of Penicuik, author of various prize essays of the Highland and Agricultural Society of Scotland," and edited by Chambers!

Cheap and popular works, especially for circulation amongst the inferior orders of the agricultural classes, should have at least three desiderata, without which they will only do incalculable harm. First, they should be written

in a clear, comprehensive style; second, they should be thoroughly destitute of all *mere theory*, and every sentiment contained in them should be those universally agreed upon; and third, the work should not be confined to the management of one class of soils, but should embrace a thorough practical knowledge of agriculture in all its branches.

These tests we shall apply in the examination of the work before us, and by these it must, as it ought to do, stand or fall. Respecting its language, it is generally very good. There is no unnecessary verbosity, no prolixity in his descriptions, and generally the style runs free and easy, and while it has quite sufficient of technical phraseology, there is no affectation of laboured and bombastic terms, which so often disgust the sensible reader, as they create the wonderment of the illiterate. If we except a few Scotticisms, such as "bray" for break, &c., it stands as fair in point of language as any book published within the last twelve months.

There is, however, too much disposition to theories, and to venture statements which are not certainly borne out by practical experience. In his introduction he says—

"If land be unproductive, and its melioration is to be attempted, the first step is to determine the cause of its sterility, *which must necessarily depend upon some defect in the constitution of the soil*, which may be easily discovered by *chemical analysis*." p. 9.

Now, this statement will not bear investigation. For instance, suppose the soil consists of every element necessary for production, but if it be subject to land springs, it will be unproductive;—this can neither be discovered by chemical analysis, nor remedied by any alteration in the constitution of the soil, but by draining. Again, he says, p. 91,—"*Much of this (land) is situated at an altitude which places it beyond the possibility of improvement.*" Thus himself makes it appear that other causes than defect in the constitution of the soil may be a cause of unproductiveness.

His observations on climate are sound and judicious; take for instance this sensible and well expressed paragraph:—

"The superabundant moisture of the ground, as in morasses and stagnant ditches, not only rises in clouds and fogs to obscure the sky, but cools down the natural heat of the earth; no evaporation can take place without the loss of heat; and moist ground being constantly under evaporation, its heat is continually flying off." p. 14.

Speaking of soils, he says—"The action of air and water on rocks in dissolving them, and the power of the latter element in transporting the disengaged particles, are the *chief causes* of the present arrangements of the soil." p. 15.

No such thing. Are we to suppose that soil was scarcely or never formed but by the decomposition of the rocks? Is it not equally and vastly more reasonable to suppose that the soil was formed at least coeval with the rocks, than to venture the strange idea that at one period nothing but stones and lichens covered this vast space? Quite contrary is this to every known principle of Divine government, which seems to aim at the filling of every atom of space with life and enjoyment. He has not, and cannot, prove that our sands, clays, and gravels ever were "washed at a former period from the rocks."

Mr. Jackson seems a strong land farmer; he evidently knows little of light soil cultivation;

hence his error that sandy soil "seldom possesses sufficient strength for wheat, beans, and flax." p. 15. The fact is that the very finest crops of wheat, and very fair ones of beans, are now produced on the sandy soils of this country, and with less difficulty than on the strong land farms. Equally erroneous is his statement respecting clay, that "in its ordinary condition it is so close in texture as to *prevent the penetration* of the roots of plants." p. 15. If this were the case, no herbage could possibly grow on clay in its "ordinary condition;" or possibly he means by its ordinary condition, its original rock.

Speaking of the interior indications of the character of soils, he very judiciously remarks:—

"For instance, rushes will invariably indicate superabundant moisture and a necessity for draining. The quantity of herbage or plants produced in a state of nature will also serve as a test of the soil and its capacity for production. A surface which exhibits thin, scanty herbage, is a sure indication of poverty of soil, or a defect of moisture in the climate. After a wet season, a thin poor soil may afford luxuriant vegetation, and a clay soil the reverse; the previous state of the weather, therefore, must be taken into account in judging of soils and their spontaneous products." p. 17.

Reverting again to Mr. J.'s remarks on sandy soils, from which we have digressed; every sandy soil occupier will see that the whole character he gives of them at page 20 is a tissue of error. "Sandy soils," he says are "*not naturally of much value*." We suppose he means by "naturally," uncultivated—and we should like to know what soil uncultivated is of much value? But what does he mean by saying almost in a breath "*when of good quality*." If they are not of much value, they can hardly by possibility be of good quality. He goes on to say that they are "*not liable to injury from the vicissitudes of the weather, and in general they are deep*." If he were to ask a sand land farmer what was the cause of the greatest danger to his crops, he would doubtless say a dry season. The fact is, one of the worst features of a sandy soil is its extreme tendency to suffer from the effects of dry weather. What he means by the soil being "*decks*" we cannot divine, after stating that it is "*not naturally of much value*;" if so, the shallower the better. To complete the climax, he continues to say that sandy soils "*retain moisture well*." Just the reverse; laying loose and open, the soil is pervious to the air and heat, and evaporation goes on more rapidly than on stronger soils. Indeed if his statement be correct, how can their fertility, as he says it does, "*depend upon the quantity and frequency of rain*?" This remark upon chalk soils are exceedingly vague and worthless, and would be much better omitted.

Mr. J. in speaking of subsoiling, p. 31-2, and again on manures, p. 44, ventures a new assertion which it will be our duty to examine; for if correct, with all our agricultural improvements, our soils may be emigrating to New Zealand. He says "*in taking a heavy crop of grain from the ground, we actually carry away a portion of the soil, and if this be done repeatedly the land must ultimately be diminished in bulk*." To the eye of a common observer the field after many years cropping remains the same as ever, but in reality a portion of its contents has disappeared, and what remains is a very different kind of substance from what existed before the cropping commenced."

The above is a fair quotation, it fairly represents his views. If true, why our farms may soon all bedock ponds. He says in another place, by way of supporting his position, "it is not to be supposed, for example, that a hundred tons of vegetable matter are to be taken yearly from a certain portion of land, without in time diminishing the bulk of the material from which it is absorbed," p. 44. From the experiments of Davy it appears that silica, &c., may be detected in wheat and barley straw, and hence it seems perfectly natural to suppose that they have come from the soil. It might perhaps be centuries before the whole could be extracted in ordinary cases; but such a case is supposable, and Mr. Jackson starts it. He seems however to forget, that how much soever of earthy matter may be extracted from the soil, the whole of it *returns to the soil with the manure*, for no fermentation will annihilate the earth!

On following, the writer has this valuable and useful remark. "The truth seems to be that fallowing is extremely useful for the purpose of working, pulverizing, cleaning, and otherwise improving lands of a poor quality after their first subjection to tillage; and that there their value rests." p. 35.

Mr. Jackson's remarks on manure are by no means satisfactory, either as regards his theoretical views, or his practical directions. An error on a point of such vital importance is fatal to any book, for whatever care may be taken in the preparation of the soil, in the selection and disposition of the seed, or in the management of the crops, if radical error prevails in the preparation of the manure, the whole will be abortive. At page 39, speaking of farm-yard manure, he says, "in every instance, the dung heaps in the fields, should be placed in a hollow situation, with a substratum of earth, and should have a scattering of a few inches of earth over it, and around the sides to keep in the volatile gases."

Now the very object of carting dung to the field, is to promote its fermentation, and fit it for the use of the (generally) turnip crop. By placing it however in a hollow situation, and by covering with earth, its fermentation will be so retarded, that if it has been carted out in the Spring, it cannot be in a state fit for the use of the turnip crop. If it were carted out in the autumn previous, his precaution is excellent; if otherwise, it cannot apply. On the subject of its subsequent management, he says, "it will be found necessary to turn it once or oftener for the purpose of accelerating the decomposition of the strawy part of the mass." p. 39. He should have added—if the weather be dry, turning will retard fermentation, without artificial moisture is supplied.

Again he says, "it is calculated that for every ton of straw, three tons of farm-yard dung may be obtained, if properly managed." p. 40. "Thus it may be presumed that two acres will manure one." Thus under the four-course system, one-half of the land being under corn, and one-fourth under turnips; so that by Mr. J.'s hypothesis, sufficient manure may be made from the farm to manure it annually. Thus he counts, and allows ten to twelve tons per acre, where such practice is adopted. It happens, however, that very few farms will in practice thus support themselves, and at least four-fifths of farms will require at least the addition of extraneous manure to the extent of one-third. Too often it has to be put *vice versa* to his assertion, viz., that three

tons of straw will make one ton of well-rotted manure.

On liquid manure he has some useful hints. His first remarks, however, upon this section refers not to liquid manure, but to compost of earth and urine; no doubt an excellent application. One exception, however, must be made to the above remarks. Alluding to the application of liquid manure he says, "The earth immediately imbibes the liquid, which soon reaches the roots of the plants, and causes a rapid fermentation." p. 41. If this rapid fermentation occurs at the roots of plants, it must have a most injurious tendency; for though plants readily imbibe the gases when evolved by fermentation, no organic matter can resist the action of fermentation immediately at its roots, and if such a state of things did occur, it must tend to destroy it.

The section of rotations is generally a very sensible one, always excepting his allusions to *dry sandy land*. Here, as he is throughout the book, we find him constantly at fault, laying down principles the most erroneous, and contradictory to practice. He opens the section by an introduction, attempting to show that nature invariably prefers a change of vegetation, and that her operations are so arranged as to effect this in the greatest possible degree. He is, however, exceedingly unfortunate in his illustrations, though correct in the principle; indeed his illustrations selected, by no means go to substantiate his position. He is not right neither in stating "that one of nature's great primary laws is that of perpetual change." Now this is not correct. It is the bungling, dreaming, star-gazing, stalking-horse of a race of some spurious pseudo-philosophers of the present day. The very reverse is in reality the case; order, not *unsettled changeableness*, is the law by which the natural world is governed, and everything occurs in exact harmony with a distinct principle of order, established by the great Architect of the universe.

But his illustrations. His first is that of a forest burnt down, and after which different kind of plants spontaneously arise. Why this arises, simply because the then standing trees, &c. are completely destroyed by the consuming element. His second is, the dispersion of seeds, and the arrangements provided for this. This, be it remembered, only proves that such dispersion is necessary, because the ground in the position where they were grown is already occupied by the parent plant. His remarks on the rotations on *clay soils* are truly excellent. We cannot refrain from copying his remarks on this head.

"On all clay soils a naked well-wrought summer fallow has ever been considered in Scotland as the basis of good husbandry, but since furrow drainage however, has taken place, on these soils, there is every possibility that a turnip, potatoe, or other green crop will be substituted for the fallow. Turnips can now be raised of a superior quality, and equal in weight of crop to those formerly raised on what were termed turnip soils; but whether this land can be kept clean or in better tilth by naked fallowing, or by green crops, is yet to be determined." p. 50.

There is another feature in his remarks on (strong land) rotations which supplies a gap which exists in nearly all our agricultural works. We mean the latter scarcely ever distinctly state *which crops*, in a given rotation, *require manure*. "British husbandry," for example. Mr. Jackson supplies the defects, and we must say in a very judicious and

practicable manner. On wheat sowing, Mr. J. quotes from the *Encyclopædia Britannica*, article "Agriculture." And like too many writers of this kind, he also falls into error on practical points. We are not fault-finding with Mr. J. here, but with the writer (we forget whom, but we believe a Scotchman) in the *Encyclopædia*. "*Poor land being always allowed more seed than rich.*" p. 55. We should not attach more of this to Mr. Jackson than as a quotation made by him, if his subsequent remarks on out sowing, p. 57, did not recognize the same erroneous principle. "*On poor soils, from the plants not spreading, oats should be sown thick,*" are his own words.

It is perfectly clear that grain will not tiller out so much on poor land as on rich—but what then? It is because the soil is not capable of sustaining a heavy crop, and the thicker the plants are, the more stunted they grow; whereas on rich soils a greater quantity of seed is required to prevent the plants from growing too gross; and they will mature a thick crop better than a thin one; besides there being less liability to lodge. Over luxuriance is a liability of a crop on a rich soil—the more plants the less danger: the converse must hold good, and does hold good, on poor soils.

Alluding to wheat, Mr. J. says, "the best criterion for judging of the fitness of grain to be carried home, is to examine the knots or joints of the straw, and if these be perfectly dead and free from juice, the crop may be then gathered with safety, even although it be a little wet with rain." p. 55. No such thing. The point to be examined in *wheat* before carting, "is the grain hard?" No matter what state the straw of wheat is in, if the grain be dry nothing more is necessary; and the state of the clover, seeds, &c. in *other crops* has much more to do with the carting than any state of the knots of the straw.

The remarks on the cultivation of rye, and especially those on spring feed, are farmer-like and useful; the same applies to barley, excepting the period he mentions for sowing (from the beginning of April to the middle of May), which is too late, and he again falls into his error stated above, respecting *this* sowing on rich land.

A sad disposition prevails to notice plants, &c. in agricultural works, not because they are valuable, but because they are *new*. The farmers have been gulled of late no little, by new introductions. Mr. J. introduces a quotation from "*British husbandry*," respecting the skinless oats; such quotations do harm if not tested by experience, especially in a book for the mass. We have tried them both on light and strong soils, and more worthless things were never cultivated.

On agricultural insects, Mr. J. as well as Mr. Main, whom he quotes, are evidently not at home; indeed, how can a farmer be expected to be so, while our Entomological Societies make the science one of empty verbose names, and the mere collection of dried specimens?

The former gentleman talks of "ploughing in spring, to bury the larva deep in the soil, where they cannot come to life." p. 59. Why, in reality nearly the whole of the insect enemies to the farmer live *naturally* deep in the ground. The latter gentleman quoted, speaks of the wood-pigeons "digging small grubs out of the tubercles on the outside of the bulbs of turnips," which he speaks of as those which would occasion "*clubbing of the roots* in another summer." Really, the first insect referred to is one of the *cynipæ*, which never does any harm; the second as proceeding from it next sum-

mer, which is one of the *mustide*—and no more the identical insect in different stages, than a calf is a donkey. Both, however, in naming insectivorous birds, forget the *swallow*, in truth, the best friend to the agriculturist in destroying insects.

His remarks on harvesting are a century behind hand, and in his zeal for destroying the seeds of weeds extracted by winnowing, he recommends "boiling" them, p. 62. To destroy them is good farming, but what farmers can be persuaded to boil? Nor is there any necessity; let them be kept separate, mixed with raw horse dung, and well fermented, and applied to old sward land. No injury can then accrue. On bean sowing he has this new and exceedingly plausible hint. We will not say a syllable against it, but it is quite *new* to us.

"When the seeds are in the ground, the land is cross harrowed, either before, or *after the beans appear*, which contributes much to check the growth of weeds, and promotes the growth of the beans." p. 63.

The sections on clover, tares, &c., are with one or two exceptions good. When he speaks of tares as being very valuable food in *early spring*, he should have said *summer*. His chapter on the falling off of clover crops, leaves the subject much as it finds it. This only can be arrived at after all—lengthen the space between the recurrence of clover, or cease attempting to grow that crop. On soiling there are some good remarks—one, p. 71, where he says, "the tillage farmer generally stands in need of more dung than can be accumulated in the usual manner from the straw of his grain crop." This is true, but irreconcilable with his statements when referred to at p. 40., which we combatted in passing.

The remarks on turnip culture are good; on potatoes he has a string of the usual quotations and opinions. On draining, his remarks are limited too much to local practice for a general treatise. For instance, speaking of the marks of undrained land he observes, "the outward mark of all *undrained arable land* is, that little or no grain grows in the furrows." p. 83. This only applies to strong land. No indication of this kind will answer in light soils. His chapter on improvement of waste land applies by far too much to land under grass, to which he makes lime the summum bonum. His instances of curing boggy land by *irrigation*, is at least curious. Daisy is an agent he evidently understands, but his cuts of the breeds are miserable caricatures, disgracing the *Editors*, rather than the author.

In a word, the work requires much revision, and must have it. We hope a second edition will be called for, and that it will be made; a little more of a general view of agricultural systems must be given. We would suggest the following *verbal* corrections. *Comet* was not from Bakewell's stock, p. 6. "*Winchester*" should be placed for "*Winchilsea*," p. 45. "*More readily*" for "*faster*," p. 640, and "*team*" for "*steam*," p. 81. M.

"CRUCIFIX."

We take leave to introduce to our friends a faithful likeness of Crucifix, the mare "*par excellence*" who won the Oaks in such good form. Of a verity, she is a splendid animal—a second Camarine. There has been nothing like her on the Turf for many a day. We hope, in all sincerity, that her noble owner, for the sake of fame or profit, will not run her off her

legs. She will win him golden honours yet—that is if his lordship will bear in mind the nursery fable of "Mother Goose and the Golden Egg." Crucifix's speed is truly wonderful, and her strides marvellous to behold. This extraordinary mare was bred by Lord Chesterfield, in 1837. She is got by Priam, out of Octaviana, the dam of Carmelite, Crusader, Carthusian, and others. Octaviana, the dam, was bred by Mr. F. Lennis, in 1815; she was got by Octavian, dam by Shuttle, out of Zara by Delpini, Flora by King Fergus, Atalanta by Match'em, Lass of the Mill by Oroonoko, &c.

According to the received standard of perfection in a racer, she presents a few striking exceptions; but we were never adepts at dissection, and therefore shall not cut her up. It is not for us to ask why or how she was thus put together, but she possesses qualities that defy criticism, and, taken as a whole, is certainly one of the most extraordinary animals on record. It will not be out of place to describe the shape and make of Crucifix on the present occasion, and it will be seen that there are a few incongruities which it will be difficult to reconcile with her performances.

To begin, then,—her head is remarkably lean, and particularly straight—eyes good—ears long—and nostrils open; the neck long and light—shoulders oblique and thin—and the brisket exceedingly deep. The chest, however, is very narrow—the arms and legs small—and the toes turned out like an opera dancer's. She is flat-sided, and the back ribs are short—the hips are wide—the quarters drooping—and the thighs flat. These peculiarities give her a wiry appearance; indeed she looks *all wire*. She is nearly sixteen hands high, but she is as nimble as a cat, and is possessed of the most remarkable faculty of reaching the top of her speed in a few strides, and this without any apparent effort. That Crucifix is a first-rate mare, her performances have proved, and we beg leave to record her triumphs, as they will justify the high opinion entertained of her, as well as warrant the unbounded confidence reposed in her powers by those who have large sums at stake, as to her future success. She won the July Stakes of 1839, over the new T.Y.C., in a canter, by two lengths, beating the Currency colt, by Buzzard, out of Margaret filly, by Sultan, out of Palais Royal. The following were not placed:—Stamboul, Petit, and Cambyzes. At the same meeting, with nine pounds extra, she won the Chesterfield Stakes, the last half of the Abingdon mile, by two lengths, beating Iris, Margaret colt, and the following not placed:—Hellepont, Stamboul, The Orphan, Trojana, Darkness, and sister to Cara. There were several false starts, and two heats, for this race. The first heat was won by Iris by half a length; Crucifix, who lost the start, second. Merle went to the post and was the cause of the false heat, and did not start after all. Crucifix, then figured at Goodwood, carrying five pounds extra for the Lavant Stakes, which she won in a canter, beating Firefly and Exit by two lengths. At the same meeting, with seven pounds extra, she won the Malcomb Stakes T.Y.C., in a canter, beating Defendat and Iris (five pounds extra) by a length. At Newmarket First October meeting, with nine pounds extra, she won the Hopeful Stakes, last half of the Abingdon mile, by a length, beating Jeffy (three pounds extra), Capotte, and the following not placed:—Raymond, Hellepont, Firefly, Ten-pound-note (three pounds extra), Perseus filly by the Colonel, out of Mary Anne, and sister to Cara. There were seventeen false starts for this race. At the same meeting Crucifix walked over for a sweepstakes T.Y.C. In the second October meeting, with

seven pounds extra, she won the Clearwell Stakes, T.Y.C., by a length, easy; beating Gibraltar, Capotte, Amurath, Perseus, and Spangle, all placed. At the same meeting she won the Prendergust Stakes, T.Y.C., by a length, easy; beating Capotte and Nicholas, who made a dead heat for second place. In the Houghton meeting, carrying nine pounds extra, she ran a dead heat for, and divided the Criterion Stakes with Gibraltar, beating Pocahontas, Amurath, Grey Melton, Olivebranch, Margaret colt, a colt by Augustus out of Constantia, and Capotte. In the first spring meeting she won, as all the world knows, the 2,000 guineas Stakes, R.M., in a canter, beating Confederate, Angelica colt, Black Beck, Scutari, and Capotte, by a length; only three placed, Confederate beating Angelica for second place by a head. At the same meeting she won the 1,000 guineas stakes, D.M., in a canter also, beating Rosablanca, Spangle, and Silistria by a length. Our readers do not require to be told that this fortunate mare won the Oaks, as they have doubtless read the account of this interesting race in our last number. In describing Crucifix as a fortunate mare, we ought rather to apply the term to her noble owner, for Lord George Bentinck may justly deem himself fortunate in possessing such a wonderful animal. She has won his lordship a hat-full of money, and she is destined yet to add to his exchequer, if her extraordinary powers are not called upon too largely. Her speed is unequalled, and there is no end to her bottom; she is the gamest bit of stuff ever bestrode by man; and if, as in days of yore, she had been allowed to arrive at maturity before being trained on to her vocation, there is no telling what her achievements might not have been. She would, in all probability, have eclipsed all the great doings of the celebrated Eclipse. It is the fashion, however, to wear out colts and fillies ere they have attained their growth or strength;—and more's the pity. We bow to custom, and under its all-powerful sway we must 'e'en be content. It is impossible, however, to divest one's self of the feeling somewhat akin to regret, that so superior an animal should not be allowed to arrive at that point of perfection when her true powers would be developed at a more mature age. Even in her nonage, Crucifix must be allowed on all hands to be a "rara avis" of horse flesh, and greater triumphs are in store for her, or we are much mistaken.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—At the request of Mr. Gall, I have great pleasure in amending the recipe I gave for the foot-rot in sheep. White mercury is corrosive sublimate, and by vitriol is meant the blue *stone* vitriol as it is called. I gave the recipe exactly as I received it many years ago, and am now informed by the druggist who makes it up for me that no commonly intelligent man in that line of business would have the least difficulty in understanding it. By "hards" is meant *coarse tow* (the printer having omitted a word which renders the passage unintelligible.)

If Mr. Gall will kindly give the particulars of Brown's ten rowed wheat in your magazine for the next month I shall feel obliged, as I am about leaving home for some time, and know not when a communication by letter could be forwarded to you.

I am, Sir, your obedient servant,
Sept. 12, 1840. M. O.

THE FARMER'S PROGRESS.

No. 7.

SPADE HUSBANDRY — DRAINING — AGRICULTURAL ECONOMY.

(The subject concluded.)

SIR,—About five and forty years ago, during a voyage to America—pray, sir, what has a voyage to America to do with *spade husbandry*?—have patience, my kind friend and monitor. If nothing less than steam pressure and railway speed, will satisfy you, skip over the following page; but if you wish to profit by the experience of a veteran agriculturist, and to know by what easy and certain means he has succeeded in doubling the produce of land previously in fair condition, and of at least quadrupling the produce of lands neglected or exhausted, give your best attention to the following remarks, which, however seemingly trivial in themselves, laid the foundation of that economy in general management, and especially in the application of spade husbandry, which has caused his *Progress* to be so uniformly successful.

I had not been many days on shipboard before I was much struck with the order and regularity which prevailed; everything was in its proper place, everything in good repair. This lesson was not lost upon me; and there are few farmers but what may profit by it: each of my labourers finds his own grafting spade, which I require to be always at hand, in good condition, and not heavy—heavy tools I never allow; and I find it my interest to purchase spades from a good maker, which I sell to my men a little below prime cost, and sometimes give one as a reward for exertion; all other spades, shovels, tools, and implements are my own, they are branded as a check to robbery; under the care of a person appointed to this duty, they are delivered out in the morning, and with a few exceptions returned at night, each deposited in its proper place, under lock and key. On Saturday evening all are in their proper places; no rake is seen with a tooth vacant, no cart or wheelbarrow with holes stopt up with straw; every defect is immediately repaired, or on the first wet day; when only fit for fire-wood, or to break up for other purposes, they are removed, and replaced by tools in perfect condition;—thus, shipboard recollection saves me many pounds a year, even in this department, and much time is saved by knowing where each implement of husbandry is to be found at the moment it is wanted.

The ship's log-book furnished a far more valuable lesson; it was a faithful record of events, arranged in simple form, without a blot, or flourish, or one unnecessary word. Profiting by the hint, on my return home, I simplified my accounts, and so arranged them that in one minute I can refer to every purchase or sale or event of importance that has occurred to me during the last forty years. Should you or any of your correspondents express a desire to have my system of book-keeping explained, I will give it you with pleasure at a future opportunity. I proceed now with the most important feature in my farming progress.

The day before our arrival at New York we spoke three ships, all, like our own, from Liverpool to that port, with cargoes of British manufacture; as we sailed past them, I was complimenting our captain on the evident superiority of his ship or

his seamanship, when he interrupted me, "you are mistaken, sir; this ship is not a very fast sailer, and I doubt not that the captains of those three vessels understand seamanship quite as well as I do; rather congratulate me on my good fortune in being employed by a merchant who possesses *practical common sense*, with judgment to see his interest, and liberality to act up to his judgment; being of opinion that the ships in this trade are, in general, little more than half manned, he allows me a more numerous and superior crew, and I am sure he gains money by it; the three ships we passed were all more or less disabled in their rigging, doubtless from an insufficiency of hands to take in sail during sudden squalls, whilst I have not had a rag split or carried away; with an insufficient crew, especially when harassed by a continuance of rough weather, it is not possible to take proper advantage even of favourable breezes; before he can hoist and trim his light sails, the breeze he should have carried with him has passed away, and it would be manifest imprudence at night, or in a gale of wind, to carry proper sail." In illustration of his argument he cited numerous cases, each tending to prove the great advantage as respected not only speed and safety, but *economy*, of a ship being well manned. Every observation of this intelligent captain applied with equal force to agriculture; the farmer and the sailor are alike dependent on the changes of the weather; in thousands of instances I have known crops much injured, and in many cases, as in the sowing of turnips, carrots, mangel wurzel, &c., entirely lost, by an insufficiency of hands to seize the lucky hour.

Providence dispenses blessings with a liberal hand, whilst man, self-willed, ignorant, or presumptuous, and above all parsimonious, neglects to seize the golden opportunity, the proffered bounty; hence the perpetual complaints of unprofitable seasons.

Before I adopted spade husbandry, like my neighbours, I was often "Harry behind;" the genial showers had passed away before the seed was sown; dependent on strolling mowers, the favourable season was lost; bad hay, made at double cost, was the natural consequence; not being able to spare a few hands to destroy docks and thistles before their seeds were ripe, or to brush the fences abounding with weeds, my fallows suffered. But since I have employed a number of spadesmen, whose time is *always* profitably occupied in trenching, levelling, draining, or other spade work, when not *still more* advantageously called away to those various agricultural operations which, to be done profitably, should be done instantly, whilst the weather is favourable, the principle operates as a "save-all;" time is never wasted, opportunity is never lost; since my adoption of it my crops have seldom failed, and seasons have *never been unpropitious or unprofitable*; the anxiety which farming formerly occasioned I feel no longer.

To return from this sea-faring digression, and to fulfil my promised allusion to the economy of spade husbandry, to draining, and to the treasure unexpectedly discovered—I again recur to simple narrative, and in the detail of improvements now pending, to explain each of those objects.

A few years ago I purchased about fifteen acres of land to improve the boundary of my farm; about ten acres consisted of a boggy hill side, and, take the whole together, no prudent farmer would

have rented it so as to pay two per cent. on the purchase money; experienced in spade husbandry, I well knew that by expending a sum not exceeding one-third of the sum I had paid for the land, it would be well worth a rental of at least four per cent on the entire expenditure; this has already been effected, and when the trenching of the rough boggy hill side is completed, part of which is reserved to occupy my spadesmen when not better employed, I have no doubt that the fifteen acres will yield five per cent. on the total cost, and whilst I retain it in hand it pays me an ample profit besides. The present crops of mangel wurzel and Swedish turnips are immense where nine months ago rushes and sour grass were the only produce: and white carrots, which, by the advice of the Farmer's Magazine, I have sown for the first time, are very promising; and the heaps of spare soil which, when I trench, are always reserved for future top-dressing, are covered with large Scotch cabbage. This salutary change from a wilderness to a garden has been entirely by the spade, at the same time aiding, never retarding, the more important duties of the farm.

My mode of procedure was as follows. The numerous vile hedges were soon burnt, and the broad ditches and high copse levelled with the ground, and a main drain or culvert was constructed, pointing at the lower extremity to a reservoir I before mentioned, and the upper extremity terminated in the hill side, in the situation best adapted for minor drains, radiating to the various springs which evidently caused the bogs.

As my plan of constructing *culverts* varies from the common practice, is simple and effective, I trust a description will be acceptable: having dug the drain nearly to the depth required, I suffer water to pass along it, then stop the water suddenly; the little lodgements of water shew every inequality in the level, and this being repeated, the bottom is easily levelled, and becomes one uniform inclined plain; if the flow be too rapid, so as to endanger the foundation of the culvert, I invariably make one or more steps, and place a firm flag or slate to receive each fall of water; the bottom is laid with slate, on which is placed a block of timber about six feet long, planed square and perfectly straight, with a strap firmly fixed at one end, to drag it along the culvert; in large culverts a hollow spout, being lighter, is preferable, but in either case it must be about an inch less in height and width than the inside diameter of the culvert; one side of the culvert is then firmly built with brick, and occasionally wedged with fragments of slate, so as to admit water, and packed behind so that rats or vermin cannot possibly displace a brick. One side being thus firmly built, two flat wedges, each being an inch thick, are introduced between the block and the bricks; the other side of the culvert is then built in the same manner, and the whole firmly covered with flag; when the block is drawn forward, and the operation repeated. By this simple expedient the culvert is perfectly straight, uniform, and firm.

According to the inequality of the ground, the covering of the culvert varied in depth from fifteen inches to five feet, except that in one low part of the field I formed a long open trough with flags, secured on each side by an inclined plane paved with stone, where cattle drink clear water without wetting their feet. This appendage to a

farm, invaluable, though little practised, I described in a former paper.

The deepest part of the culvert was where it entered the hill side, and received the water from two smaller culverts, right and left, nearly at right angles; these, being from three to six feet deep, and covered with gravel, except a graft or two of porous soil on the surface, cut off all the upper water; so that a few small tile-drains, to low places where water lodged during heavy rain, emptying themselves into the main culvert, effectually drained not only about six acres, being the low flat part of my new purchase, but a part also of my old farm.

After waiting, as I generally do, a few months, to observe how far the influence of the three culverts extended, I proceeded to attack the bogs, or rather the springs, which, for want of a vent through retentive soil, almost universally cause the bogs or morasses we see on hill sides.

From the junction of the three culverts I made two drains with large tile slanting up the hill, one to the right and the other to the left, perfectly straight, as all my drains are; the direction of each tile-drain was a little *below* the lowest bog, and they were covered also with gravel and light porous soil; from these tile-drains I cut five horizontal drains straight up the hill, pointed to the highest rushes; these uphill drains were entirely dug by one spadesman, whom I had instructed to proceed with great caution, and never to venture a graft deeper until the sides were dry and relieved from the pressure of water; he was attended by an assistant who, to prevent pressure, wheeled into low places the earth dug from the drain, and he had also a few boards and spars to support the sides where the cutting was very deep; as I expected, by the time he had thus dug from six to nine feet into the hill side, he reached a quicksand and spring; tiles were then laid, the drains filled up with gravel, and the land for a very considerable distance was thus effectually drained. The adjoining bogs I paid no attention to, well knowing that when the spring had a vent many feet below the bogs, they would in a few months, for want of a fresh supply of water from the springs, dry by evaporation. These five short deep drains, scarcely averaging twenty yards each, have effectually drained the whole hill side from the effect of the springs, and as to top water, it never injures sloping ground properly drained and levelled—drains in such cases are quite unnecessary, a very common but ill-judged extravagance. At the termination of every deep drain I fix a strong rough oak post, which will shew to future generations where to dig in case the drain should fail to act, and in the mean time be useful as scrubbing posts for cattle, and also save young trees from injury.

The treasure I mentioned in page 342 was not a gold mine, nor a silver mine, but better than either, for it enables British labourers to maintain their families in comfort even in the depth of winter. Trenching, levelling, and draining, occupy most of their time, when not engaged in still more important occupations; but in wet or very tempestuous weather I have often been at a loss how to find them employ—threshing, chopping hay, making faggots, preparing stumps and rails for fences, and various other sources of employ, under cover, are valuable auxiliaries, but with a number of spadesmen they are soon exhausted; then it is that a pit, deep and dry, of gravel or marl or stone, or anything by which a stout

labourer can earn his livelihood during a hard frost, is really a treasure both to the farmer and his men.

The unexpected discovery was attended by such a variety of incidents, showing in so clear a point of view the advantage and the profit of spade husbandry, and at the same time exemplifying the simplicity and economy by which spade operations may and ought to be conducted, that I cannot better conclude this my seventh and last number of the Farmer's Progress, than by a plain statement of the facts as they occurred.

A very careful industrious farmer, who occupies a farm adjoining mine, had long observed my new-fangled operations, and I dare say often smiled at them; at length, convinced by ocular demonstration of the advantage and economy of my practice, he has made his farm so like mine that strangers conclude they must be one property; rough places he has levelled—he has ridden up a number of old fences, and so reduced the height and breadth of those that remain, that neither trespassers nor weeds can hide themselves. In the month of February last, one field of nine acres was an exception to the general neatness of the two farms—it had been in a different tenure, and had only been added to his farm a few years—the vile fences and broad ditches were half his, half mine; we had both wished to modernize them, but as he has not yet adopted my plan of soiling cattle, the great expense of double rails to young thorn hedges prohibited the wished improvements.

This year he has set the whole field with potatoes, and consequently his cattle will be kept out of it three or more years; we had therefore a favourable opportunity of burning the old hedges, levelling the copse and ditches, and planting a new quickset hedge. His farm being also *well manned*, and February not a busy month, we both commenced immediately. I availed myself of the opportunity of raising a water course, hitherto useless, being at the bottom of a deep ditch, to a high uniform level, from whence I can irrigate several acres of meadow land at pleasure; this alone compensates the entire expense of my alteration, and besides this I gained about half an acre of productive land.

But the farmer, with equal judgement and spirit, applied spade husbandry to far greater advantage; the field was so uneven that he could not plough it without doing that from necessity, which simpletons in many parts of England do from choice, viz., plough with a driver, by removing probably 800 cubical yards of earth from a knoll or mound, in the line of his new hedge and raising with it several low places, he has so improved the general level of the field, that he ploughed the whole with two horses abreast; the saving already, including his having set fully half an acre additional of potatoes, has re-paid the wages of his labourers, and I am sure the value of the field is improved at least nine pounds a year. The same mound which my neighbour had reduced, extended into my field, but I had no inducement to go to the expense of lowering it, being a productive meadow, and though from its undulations ill-suited for the plough, quite smooth enough for the scythe. Having a few years before discovered a deep bed of marl in the same valley—in hopes of finding more, determined to sink to the red sand rock which forms the bed of the river Mersey, distant not a hundred yards; after sinking through 10 or 12 feet of inferior gravel, of

no value, the quality improved, and near the rock at the depth of 15 to 20 feet, we found excellent hard stone well adapted to break for Mc. Adam road and boulders suited for town pavement; it was evident that the stone would more than pay all the cost of lowering the mound—there was no hesitation in determining to get out the stone, and to level the land; but how to effect the improvement at the least expense required consideration.

The common practice, on such occasions, is to wheel the sods, the soil, the loam, the rubbish into separate heaps: to have done this would have sacrificed nearly an acre of hay-grass, and thrown away many pounds in shifting the materials twice; an expense I almost entirely avoid. I have before stated, that in levelling grass land, half, or even a third part of the sods, if torn in fragments, will yield more herbage than if the sods be entirely replaced; having thus a quantity of sods at liberty, they were removed at once to form a firm level margin to the new water course; with the spare soil I gave a slight top-dressing to the whole meadow; a large portion of the subsoil being not a bad mixture of sand and clay, wanting only lime and exposure to atmospheric changes to become useful soil, I placed it in small heaps over the whole field, adding to each some lime-compost well riddled; in a few weeks the whole of the hard lumps of subsoil fell into small fragments, mixed with lime, and in that state both were spread together over the whole field. For this process I have been already re-paid by the best crop of hay and after-grass the field ever gave me; with the inferior loam and small gravel I raised several low places in the same field to one common level; and with the round soft gravel I made a large deep drain in a meadow where the very old drains were partially choked up, but being intersected by the new drain on a lower level, they again act, and the meadow is already converted into sound land.

Thus by availing myself of those collateral advantages, which seldom fail to attend spade-husbandry, the entire cost of laying bare this valuable bed of stone was more than re-paid to me by the uses to which the upper strata were immediately applied; after raising and selling a quantity of stone, filling up and levelling the surface as we proceeded, I fenced the place to prevent accident, and reserved the bed of stone to employ my labourers when other occupations fail.

Having trespassed so very much beyond my wishes or expectation upon your valuable pages, I must cut very short my promised allusion to embankments, although the subject forms an important part of spade-husbandry. I allow no water, however petty the quantity, to quit my farm without impounding it until it has deposited a large portion of the dung, the soil, the leaves and other substances, animal and vegetable, which every heavy showers pilfers from cultivated land; by this means I collect annually many tons of nutritive manure; in some cases a flag, or slate, or log of wood, or even a few sods across the runlet may suffice, but I prefer cess-pools large enough to contain a few tons of mud; digging them in low situations, where the soil dug out is usefully employed in raising the level of some low damp place; but when, besides collecting the mud, I raise the water to a much higher level, for agricultural purposes I make an embankment so high and dry that in the heaviest floods no water can

passover it, and by diverting the stream over sound land, to the right or left of the embankment, and confining its descent to an inclined plane paved with brick or stone, all danger of washing away the embankment is averted. The reservoir I before mentioned, which I formed by an embankment fifteen feet high and eighty feet wide, has firmly withstood every flood during the last dozen years without any repair. By a very simple and inexpensive expedient, I can let off the water either so gently as scarcely to disturb the mud, leaving it to be wheeled out to manure the upper land, or I can spread the mud by the pressure of water, over the lower meadows. My plan is this; through the bottom of the embankment is imbedded in puddle an old (cracked) pump-tree, with a conical larch plug, four or five feet long, having an iron ring and a short chain firmly fixed to the thick end of the plug; when we let off the water we tie one end of a cart-rope to the chain, the other end we secure by a few turns round a tree or stump, and by hauling the rope more or less tight we regulate the issue of water exactly to our wishes.

To conclude—should any of your correspondents doubt the success, or which is of far greater importance, the economy of each of my agricultural improvements, they have now an easy way of resolving their doubts, and of testing how far my narrative is over or under-drawn. The magnificent viaduct at Stockport is worthy inspection; and when there, a walk of a mile due west, along the public road on the North side of the Mersey, will bring the enquiring agriculturist to my farm, where the uniformity of the gates will denote every field; if at home I shall be happy to show the tank, the iron spouts, the iron rails, watering places, culverts and drains, the flat-wheeled carts, the incredibly cheap agricultural roads, the deep stone pit, the cess-pools, the mats that have mainly contributed to my having made this wet season two-hundred and seventy-three cart loads of first crop hay, and forty-eight of eddish-hay all in prime condition, the subsoil-plough I had made and used *twelve years ago*, in short, every thing described in the farmer's progress, and many others of considerable utility; if from home, any of my men will give a civil answer to every proper enquiry—my farm and all belonging to it being always open to every agriculturist.

Convinced that if spade-husbandry was better understood and judiciously applied to improveable soil, not thrown away on "barren waste,"—labourers would be in request, their wages would improve, poor rates would diminish, emigration at the public expense would cease, hopkeepers and manufacturers would be benefitted, farmers would again lift up their heads, and agriculture would resume its proper station in society; in short, convinced that the cause I venture to advocate is of *first-rate* national importance, and being also of opinion, that although in works of literature or of fiction, concealment of the author, so far from injuring, enhances, by exciting the public interest, it is not so as respects matters of fact; evidence, however true, carries little weight if not openly avowed; these considerations induce me to throw aside the mantle of Cincinnatus, and in *propria persona* to have the honour to subscribe myself,

Sir, your much obliged, and

very humble servant,

FRANCIS PHILIP.

Bank Hall, near Stockport, Oct. 13, 1840.

THE ASHTON AGRICULTURAL SOCIETY.

The meeting took place on the 7th Oct. About a hundred gentlemen dined together, and T. R. W. France, Esq., of Rawcliffe Hall, took the chair.

Among the company were—George Jacson, Esq., of Barton Lodge; John Cunliffe, Esq., of Myerscough; William Garnett, Esq., Bleasdale Tower; H. Hargreaves, Esq., Springfield Hall; — Grundy, Esq.; Rev. R. Moor, Lund; Kingston Salisbury, Esq., R. Pedder, Esq., Brougham Cottage; J. Walmsley, Esq., Richmond House; A. R. Ford, Esq., Ellet Hall; T. H. Higgin, Esq., W. Robinson, Esq., T. Thompson, Esq., — Gibson, R. M. Arthington, Esq., R. Wilson, Esq., C. Johnson, Esq., Mr. R. Hinde, Mr. T. Wilson, Mr. T. Lamb, Mr. J. Walmsley, &c. W. Lamb, Esq., of Hay Carr, officiated as Vice-Chairman, assisted by Mr. Jenkinson, as croupier at the other table.

The judges of cattle were—Mr. Outhwaite, from the neighbourhood of Stockton, Yorkshire, and Mr. Minton, from Staffordshire; and the inspectors of crops—Messrs. Joseph Parkinson, of Cockerham, Mr. Smith, Hole of Ellet, and Mr. George Presow, of Halton.

Mr. CUNLIFFE then read the following report, in so distinct and impressive a manner, that it lost none of its effect. The report was listened to with great attention, and received with loud applause:—

"The Inspectors of the Ashton Agricultural Society take the liberty of laying before the committee their annual report. They have taken a careful survey of the various farms, stocks, and crops, which have been submitted to their judgment; and can affirm that should not their decisions in every case afford satisfaction, it will not arise from a want of carefully and impartially weighing the respective merits of each candidate's claims.

"In giving their third report the inspectors may be allowed to congratulate the society on the improvement which is now in progress. This, they beg to observe, is not intended as the ordinary language of common-place congratulations; but it is the statement of a fact which they have found everywhere visible. They who have been in the constant habit of seeing the various farms, may not so distinctly perceive its gradual progress; but the inspectors, who only take an annual survey, cannot but be struck with the comparison between their present condition and that three years ago.

"In saying thus much, their remarks must not be considered universal. There are some farms on which the march of improvement has made but small progress, there are others on which the advancement is only, as it were, commencing; and of the very best it may be said, that much still remains behind, which care, and labour, and skill only can protect. It is as an incentive, then, to further perseverance, that the inspectors would submit their remarks; seeing, as they ever have done, that the comfort, respectability, and prosperity of the tenant go hand in hand with the due cultivation of his farm, and that these are attended by the encouraging good will and active support of his landlord.

"In each of their preceding reports the inspectors have earnestly pressed upon the attention of the tenantry the cultivation of green crops. It is a matter gratifying for them to state, that their recommendation has been very generally followed. They have, however, much to regret that the two last seasons, from their unusual wetness, have hardly offered

a fair test of the benefit of such culture ; still they are confident that under the most unfavourable circumstances, its advantages will be perceived and appreciated more and more.

"In connection with green crops, the inspectors beg to state that they have observed with the greatest pleasure a manifest improvement in the rotation of cropping. They perceive that on strong soils the clover is grown after wheat, and that on lighter after barley. This is now a general rule, and they cannot but consider it a marked and undoubted advance, tending at the same time to the good of the land and the welfare of its tenant.

"The inspectors, also, in their two previous reports, have pressed upon the tenantry the necessity of effectual drainage ; and the wetness of the late seasons again more particularly urges the subject on their notice. Drainage is the very groundwork of good husbandry ; without it the farmer may expend his labour and manure, and after all be little benefited by the outlay. It is draining only which can render the soil fit for the reception of the manure. It takes off its superabundant moisture ; it opens it to the admission of the atmosphere ; it imparts to it a mellowness ; and thus, when the manure is applied, instead of its properties being utterly wasted, or, at all events, expended on the production of a bad herb, they have full scope for the due expansion of their fertilizing powers.

"In furtherance of this advice, the inspectors take the liberty of recommending Smith's subsoil plough. It is an invention, they are aware, not much known in this neighbourhood ; but it has been used with eminent success in other counties. Indeed, they do not offer the advice without having witnessed its beneficial effects even in this district. They saw the plough applied upon a field on the Hay Carr farm, belonging to Mr. Lamb, in the spring of this year. Before the operation the land was very poor, of a stiff, clay soil, with a retentive clay substratum. It was thoroughly drained and ploughed, and is now a dry and mellow soil, capable of producing green crops—indeed, now producing a very superior crop of Swedish turnips. They would, therefore, earnestly recommend the use of this plough, as they can do so with the utmost certainty of its successful results, where the land has previously been thoroughly drained.

"As a cheap and expeditious mode of laying land dry, the Suffolk drain plough has been used with great advantage. It has been tried in this district, and in lands suited to its application, its merits have been admitted, and the inspectors would suggest that a more extended use of it would materially add to the cultivation of certain soils upon the estate.

"In their previous remarks upon the general improvements now in progress, the inspectors would be understood as including that of stock. They mark with much pleasure the gradual advance which has been made in the breeding of cattle ; it seems now to be a matter of emulation to have a good stock, and the great facility for obtaining this through the introduction of well-bred bulls appears to have been properly appreciated by the tenantry. As, however, it is not possible for any farmer to obtain a thoroughly good stock at once, they look forward confidently to this progress being developed more and more.

"Before proceeding to their particular remark, the inspectors would warn the tenantry, that what they have said in commendation be not made a pretext for relaxed exertion. Much has been done, but very

much remains to be done. The cultivation of green crops must be still further extended ; draining must occupy a yet greater degree of attention ; many old and useless fences are to be cleared away, many crooked ones to be straightened, and many which are standing but in a very slovenly condition, to be cut, splashed, and dressed in a workman-like manner, before many of the farms can be regarded with approval or satisfaction.

CLASS I.

"PREMIUM 1.—To the occupier of any farm, being not less in quantity than 100 acres, who shall have the same in the most improved state of cultivation, and best general condition, the sum of eight sovs. or plate of that value.

"For this premium there were three competitors, all of whom deserve the notice and commendation of the inspectors. The successful claimant is Mr. Wm. Butler, of Tarnwater, in Ashton.

"Mr. Wm. Butler's farm consists of 200 acres, and the relative proportion of his crops is at present as follows :

	A.	R.	P.
Meadow.....	56	0	0
Pasture	86	0	0
Clover pasture	25	0	0
Oats	8	0	0
Beans (drilled).....	17	0	0
Turnips	6	0	0
Potatoes.....	2	0	0
	200	0	0

"As a considerable portion of this farm is well adapted for grazing and dairy produce, but a small extent will be found in tillage. The inspectors, however, state that too much cannot be said in praise of its general management. The crops produced are excellent, the drilled beans, seventeen acres, do the occupier great credit, and the turnips are peculiarly fine.

"The inspectors consider that they would hardly be doing justice to Mrs. Butler if they made no mention of the excellent management of her dairy ; great care is evidently bestowed upon it ; indeed, Mr. Butler would be entitled to the prizes which are offered for cheese and for turnips, as well as for the best managed farm, had he not been precluded from obtaining them by the rules of the society.

"Much attention has been bestowed upon Mr. Butler's stock. It consists of thirty-three milch cows, six two-years old heifers, ten one-year old, ten calves, sixty sheep, three work horses, one three-years old, two two-years old, one yearling, three foals, and three pigs.

"The inspectors at the same time must be allowed to remind the tenant, that some draining is required on his farm, and that more attention ought to be paid to his fences, which they do not find in the neatest order.

"The other candidates are Mr. John Gardner and Mr. Thomas Bradley, to whose merits the inspectors bear their testimony. The farm of Thomas Bradley especially deserves their approval. It is in good order, though from the wetness of the season operating upon the stiff soils, his efforts have in some degree been counteracted. The same remark applies here also as in the case of Mr. William Butler, in regard to draining and due attention to the neatness of the fences.

PREMIUM 2.—For the best managed farm not less than 50 acres.

For this premium there were six competitors, out

of whom Mr. John Wilson, of Longmoor, has been selected: his farm consists of 96 acres, of which the following is the proportion of crop:—

	A.	R.	P.
Meadow, pasture, and clover	63	0	0
Oats	10	0	0
Summer fallow	4	0	0
Wheat	8	0	0
Beans	6	0	0
Turnips	5	0	0
	96	0	0

"The land in tillage is well manured, and the inspectors consider it well managed; the dairy, also, is attended to with care; but Mr. Wilson should look more closely to his fences, some of which are decidedly in a neglected state. The other competitors deserve great praise for the manifest improvement of their farms, and offer well to become claimants for this premium another year.

PREMIUM 3.—Cheese Farm.

"For this premium there were three competitors. The successful one is Mr. Jenkinson, of Wyersdale; his farm is situated in the Upland, and more calculated for grass than corn. It is supplied with manure in an abundant quantity, and well managed. It does not appear, however, to be thoroughly drained. The dairy is attended to with especial care, and the cheese examined by the Inspectors, from their appearance and quality, fully testify that that department of a dairy farm is strictly looked after.

"The other two competitors merit almost the same degree of praise as Mr. Jenkinson.—It has been with much difficulty that the claims of the three have been adjudged.

"PREMIUM 4.—Moss Farm.

"For this prize there were three competitors, out of whom Mr. William Balderstone has been selected. His farm consists of 150 acres of principally moss land, and of his management the Inspectors express their unqualified approbation, when they consider the neatness of his farm-yard, the quantity of new white thorn hedges he has made, the number of rods of old fences he has removed at his own expence, the fall he has brought up as drainage, the lands he covered annually with marl (to the extent of 12 acres,) the length of drains he has laid during the year;—when they consider his general management exhibited in these instances, they can hardly discover a point on which to find fault with this tenant.

"The other claimants, however, are not without merit, though inferior to Balderstone. The Inspectors would here make a remark which has reference to the greatest part of moss farms; they would recommend that a greater portion of land should be laid down near to the buildings, for permanent meadow and pasture.

"PREMIUMS 5 and 6.—The Inspectors are sorry to observe that there are no competitors for these prizes. They feel assured, however, that the farmers have used their best efforts to compete for them, as is shewn from the greater breadth of clover which is observable this year; they attribute it solely to the wetness of the season, which has operated unfavourably on this plant, and to the reluctance of the tenant to come forward, lest their claims might not be judged worthy of a prize.

"PREMIUM 7.—Red Clover.

"For this prize there were three candidates.—It has been awarded to Mr. Richard Walker, of Park Side, in Ashton.—He has 13 acres well managed and luxuriant.

"PREMIUMS 8 and 9.—Owing to some mistake

the claims for draining, and planting new fences, were not sent in till after the appointed time; they must, therefore, stand over for the competition of another year.

CLASS II.—CROPS, &c.

"PREMIUM 1.—Swedish Turnips, not less than two acres.

"There were three claimants, of whom it has been awarded to Mr. Thomas Bradley, of Cabus.

"PREMIUM 2.—Swedish Turnips, not less than one acre.

"There were here seven claimants; it has been awarded to Mr. James Hathomthwaite, of Cabus.

"PREMIUM 3.—Common Turnips, not less than one acre.

"There were for this four claimants; the prize has been awarded to Mr. Thomas Winder, of Clevely. The Inspectors beg to remark that this is a most remarkably heavy crop, and worthy of observation.

"In regard to the cultivation of the turnip, the Inspectors would address to the tenantry the same remarks they did last year. There seems in many instances a want of care in planting the seed; there is also a considerable neglect of the plant after it has sprung up; unless, however, a proper management be used in thinning, hoeing, and cleaning, as the crop proceeds, a good one cannot with certainty be calculated upon.

"PREMIUM 4.—Drilled Beans.

"For this premium there were five competitors, who deserve all the praise that can be given them, for the excellency of their crops, and the clean and neat order of their land.—It has been awarded to Mr. John Gardner, of the Old Holly, in Cabus, but not without the greatest difficulty and consideration.

"PREMIUM 5.—To the occupier who shall, on the day appointed, plough a piece of ground in the neatest and best manner, the sum of Two Sovereigns.—Awarded to Mr. John Welch.

"PREMIUM 6.—For the second best—One Pound Ten Shillings.—Awarded To Mr. Thomas Bradly.

"PREMIUM 7.—For the third best, One Sovereign.—Awarded to Mr. Robert Daniel.

CLASS III.

"PREMIUM 1.—General Stock of Store Cattle.—For this premium there were three competitors.

"The Inspectors may be permitted here to repeat their former remarks on the general improvement of stock upon the estate; this is very visible when taking an extended view of the store cattle on the various farms; and not the less so in the particular instances they have been called to inspect. Out of the three candidates, all of whom are highly meritorious in their claims, the Inspectors have selected Mr. Thomas Winder, of Clevely; his stock consists of 20 milch cows, 30 two-years-old heifers, 13 one-year-old, 12 calves, 2 bulls; all of the short-horned breed. This the Inspectors would confidently submit to the examination of judges, as being an excellent selection of cattle. He has also on his farm 15 Leicester ewes, 20 half-bred sheep, 4 work-horses, 1 two-years-old colt, 1 yearling colt, 1 breeding sow, and 3 store pigs.

REWARDS.

"PREMIUM 1.—To the labourer in husbandry whose rent does not exceed 7*l.* per annum, by whom the greatest number of legitimate children has been brought up without receiving parochial relief, two sovereigns.—Awarded to Thomas Topping.

"PREMIUM 2.—To the labourer in husbandry whose rent does not exceed 7*l.* per annum, who

shall have his cottage and garden in the neatest and most exact order, the sum of two sovereigns.—Awarded to Edward Pike.

"PREMIUM 3.—To the Farmer's man servant who has served the longest in one place, and for having conducted himself to the satisfaction of his employer, the sum of two sovereigns.—Awarded to John —.

"PREMIUM 4.—To the Farmer's woman servant, who has served the longest in one place, and for having conducted herself to the satisfaction of her employer, the sum of two sovereigns.—Awarded to Mary Carr.

"PREMIUM 5.—To the ploughman who ploughed for the successful candidate (as in Class 2, premium 5) the sum of ten shillings.—Awarded to Thomas Clifton.

"PREMIUM 6.—To the ploughman who ploughed for the successful candidate (as in Class 2, premium 6) the sum of seven shillings.—Awarded to Thomas Bradley, jun.

"PREMIUM 7.—To the ploughman who ploughed for the successful candidate (as in Class 2, premium 7) the sum of five shillings.—Awarded to Isaac Daniel.

"The Inspectors beg to state that in addition to the labours of former years, they have been called upon to adjudge a sweepstakes for Swedish turnips, open to all competitors. For this seven entries were made, from persons residing in Over Kellet, Pilling, Ellet, and from amongst the tenantry of the Duke of Hamilton; they have found very excellent crops in their inspections; but their previous remarks on the cultivation of the turnip would not be inapplicable here. They would press upon the attention of all growers of the turnip the necessity of thinning and cleansing at the proper season. They have awarded the first prize to Mr. Alty, of Pilling, as the heaviest crop; and, indeed, they consider it extraordinary in weight. On remarking on the second best, they would adduce it as a very strong proof of the beneficial effects of the subsoil plough. The soil on which the crop is grown was originally a poor stiff clay, with a retentive bottom, quite unfit, as it appeared to many, for the growth of green crops. It is now converted into a dry free soil; and there is growing thereon a crop of Swedish turnips, next in quantity to Mr. Alty's, superior in quality to all the seven, and inferior to none in management."

The CHAIRMAN described to the meeting an act of parliament brought in and past last session of great value. A better system of drainage was much wanted, especially in so level a country as this. It had been neglected not only by the tenant, but by the landlord, and he publicly expressed that opinion. How could they expect a tenant on a 7 or 9 year's lease to be at the whole expense of draining. Draining was the first step in all good agriculture, and it was a permanent advantage to property. What was wanted was some equitable adjustment with regard to the expense (*Applause*). The whole expense ought not to be thrown on the landlord, particularly as in some instances where the landlord was merely a tenant for life, and had only a fleeting interest in the property. By the bill in question, which was brought into the House of Commons by Mr. Pusey, and by the Duke of Richmond into the House of Lords, entailed property was made to bear a share of the burden, and it enabled owners of entailed estates to make provision for draining. The preamble stated that such property would by this means be rendered permanently more productive, and increased employment for farming labourers be provided. Suppose a proprietor of an entailed estate laid out 100*l.* in drain-

ing, that would become an equitable charge on the tenant for life, which was to be paid off in certain cases in 18 years. That was an advantage not only for the landlord but for the tenant. The landlord would receive an increased rent no doubt, but the tenant would find the land improved, and those who held in remainder would pay a portion of the charge, whereby their property had been increased in value. He (the Chairman) was a tenant for life, and he and others in his situation would not be able to say when a tenant called upon them to join him in the expense of draining, "Thomas, I have six children, and am only a tenant for life." He could now make an equitable adjustment for those who should come after him. They might now expect to see through the whole country, whether on entailed property or not, drainage carried out to the fullest extent. He proposed "The Duke of Richmond and the English Agricultural Society" (three times three).

The CHAIRMAN, after eulogising the manner in which they had discharged their duties, proposed the judges of stock. He called upon Mr. Outhwaite to return thanks.

Mr. OUTHWAITE returned thanks. He and his colleague, Mr. Minton, were from two distant counties, and came there without prejudice in favour of any one to decide upon stock, the owners of which they did not know. With regard to the animals that had been shown to him in the last four and twenty hours, he must frankly say that he was surprised to see animals so good. The horse-flesh was good, and though the junior judge he had seen a great deal, and had to decide at many meetings, and he would say, that from the same quantity of horses shown both Mr. M. and he had never before seen the quality better (*Cheers*). So much was this the case, that they had great difficulty in deciding, so superior was the quality. The cows, though not equal to the horses, were very good indeed. The young stock of three years, two years and one year old, were also fair, though not first-rate. The shorthorned heifers were useful farming stock. The bulls were not so good, and indeed his co-adjutor and himself were of opinion that they should not be used as bulls at all (*Laughter and applause*). He did not allude to all the bulls, but only to those shown for premiums. There was a large sized old bull on the field that was worth them all put together, and which was worthy to be shown at Oxford, Northallerton, Leeds, or any of the great shows. The pigs were not the best he ever saw, but they were a good useful stock, and he had no fault to find with them. They were as good as a farmer need to keep. The sheep were also good. There was one description which he and his colleague did not understand much about, the black-faced tups, which neither of them had been used to. In judging of the sheep they were particular to notice the wool—for the quality of the wool ought to be looked to as well as the mutton. He expected to have found the Leicester bred sheep more numerous than they were, but those that were shown were as good as could have been expected. After all, the farmers in this part of the country were a great deal behind what they ought to be. From their climate they ought to have the best blood in sheep, pigs, and other stock. From what he saw of the farms yesterday, he thought them in a bad state of cultivation. He did not know whether it was the landlord's fault or the tenant's, or both,—(*a laugh*)—but he hoped they would go hand in hand in future, for a brighter day had dawned in agricultural improvements. If

any improvement had been made here, all he could say was, that they must have been in a wretched state before (*laughter and cheers*). He (Mr. Outhwaite) farmed 600 acres, at 50s. an acre, in the next county, and, when times were doing well, travelled into Lincolnshire to learn a little. There he examined into the different descriptions of artificial manure—rape dust, which he knew nothing about, and bone manure, which had been partially tried. On his return, he explained to the different farmers his neighbours what he had seen, and wished them to try the experiment. They, however, said they would rather see him set the example, and accordingly he put 30lbs. of rape dust on sixteen acres of land, and had paid 48l. for a Suffolk drill for it. Altogether he had drills upon his farm which cost him 170l. He used the drill, rape manure, and seed corn at a nondescript price, and then got a stock of spring wheat after turnips, which, as the field was near the public road between London and Edinburgh, was the astonishment of every traveller. He had no doubt this experiment paid him 50 per cent., for he had 12 to 15 bushels of wheat more on this than on any other part of his land. His neighbours now were all satisfied, and, at their suggestion, he (Mr. Outhwaite) procured a hand-mill, at which he had ground 24 tons of rape, by two men and a woman, equal to 100 acres of wheat. The mill cost 10l. 10s., and his neighbours paid him a small sum for the use of it. Altogether the artificial manure he had used this year—rape, bone dust, &c., cost him 268l. (*hear*). He had now 200 acres of corn, and 97 acres of turnips—all an average crop, and he considered that his turnips and corn were worth 500l. or 600l. more than they would have been had he not used artificial manure. (*Hear and applause*). But manure was not all, for they might put on artificial manure, but, without draining and the subsoil plough, it would be almost in vain. If it were properly drained and subsoiled, they might grow turnips, clover, white clover, and pastures, &c., so that where they now kept one sheep they might keep 20 Leicester bred sheep on the same land (*Cheers*). Agriculture was really only in its infancy.—(*hear*)—and he would recommend some of the farmers to do as he had done, and visit distant counties, to see what was going on. Different countries required different systems, adapted to their climate, soil, and other peculiarities. No rule could be laid down, for instance, for a uniform rotation of crops, for a rotation that would suit one part of the country would not do for another. He never saw a country which stood more in need, or would profit more from draining and the use of the subsoil plough, than the land hereabouts. It would then grow turnips and clover as well as could be wished. He (Mr. Outhwaite) should be happy to show any member of the Ashton Association his improvements, for he had no wish to confine his experience to his own breast. The soil on his farm was not of a nature to require a great deal of draining. The next time he visited this part of the country he hoped he should find a great improvement in the cultivation of the soil. (Mr. Outhwaite concluded his interesting and useful speech amid loud applause).

The CHAIRMAN returned thanks. To the best of his humble ability he had united with his tenantry to improve the land as much as possible. He had offered to join them in the expense of draining. I will find materials—turf or tile (he had said); you find cartage, and there we are equal. Then the expense of making the drains,

whether it is 4d. or 2d. I will bear one-half. At first he had advanced money and charged a per centage, but he found his tenants liked short reckonings, and his last plan he found the best. In no instance had the tenant failed to get back his outlay, with a hundred per cent. profit. (*Cheers*.) The effect which effectual draining had had in some places was wonderful. A tenant of his who had a meadow with a retentive subsoil, was at last persuaded by him (the Chairman) to try draining. Up to that time he had never got more than ten loads of hay. The meadow was drained with turf upon his (the Chairman's) plan, and the next year the tenant carted twenty-nine loads of hay, where he had never got more than ten. He (the Chairman) had said on hearing this, "What a pity it was not thirty loads, so that it might have been three to one." (*Cheers*.) The tenant who occupied the farm on which the turnips were from, had had it seven years. The land upon which they were grown was valued in his (the Chairman's) father's time at three noughts. Now he could grow 20 tons of turrips to the statute acre upon it. (*Cheers*.) He had told them of one bill passed during the last session, which affected the landed interest. Another bill, brought in by Mr. Handley, the member for Lincolnshire, passed the House of Commons, but came too late to the House of Lords. The object of it was also to improve drainage, and in this way. It sometimes happened that a tenant who occupied a low level, did not see the utility of draining quite so plainly as his neighbours; and when a neighbour begged of him to deepen his water courses, without which the water could not be carried off his neighbour's land, the tenant might refuse so to deepen his water courses, and as the law at present stood, that was a legal refusal. The bill to which he referred, which was entitled, a bill to facilitate the drainage of land in England and Wales, provided that when a man had command of the outlet of water from his neighbour's lands and refused to deepen his drains, that might be done for him, and a jury summoned to assess the damages. Another subject which he might be allowed to mention was education. A law had been passed, extending the benefits of grammar schools and parish schools, so that where Greek and Latin had only been taught, agriculture as a science was now added; and agriculture was a science, and one of the most beautiful of the sciences. (*Hear*.) This bill was brought in by Sir Eardley Wilmot, and enabled the trustees of the schools to extend the course of education, as the benefactor would doubtless have wished it had he lived in this age. Why should they not teach the rudiments of botany, chemistry, geometry, mechanism, geology? they would all be the better for it, whether they were squires or farmers. There was reason to hope that the education of farmers' sons would now be very different from what it had been. He begged to give "Mr. Minton and the Staffordshire Agriculturists."

Mr. MINTON returned thanks in a speech full of practical and valuable information. He was sorry to find green crops so much neglected hereabouts, for farmers could not expect to raise superior stock until they provided superior food for it. (*Cheers*.) When he began farming he tried the old plan of draining at obtuse angles, but after reading Mr. Smith of Deanston's pamphlet on draining and subsoil ploughing, he tried the perpendicular drains, and found them better. It was no use draining, however, unless they kept their

ditches open. Many persons were at the expense of draining who neglected to open their ditches, and by thus stopping the drains they found their land wetter than before. (*Applause.*) Their hedges, too, should be planted nearly on the level. The next point to be effected was subsoil ploughing, which must go at right angles with the perpendicular drains. (*Cheers.*) He (Mr. Minton) had used the subsoil plough upon ten or twenty acres every year, and on a soil very similar to that described in the Inspectors' report—a shallow surface soil and a retentive subsoil. He had grown as good crops of wheat, without manure, after subsoiling, as he had formerly grown with manure at 6*l.*, 8*l.*, or 10*l.* an acre, and considered himself well repaid by the experiment. He impressed upon the meeting the necessity of abundant manure, rotation of crops, the subsoil plough, and draining, by means of which they would be able immeasurably to improve their green crops, and to keep a much greater quantity of stock. (*Cheers.*) Stock was either appropriated to feeding or milking. Little skill was required for the first beyond the selection of stock and growing green crops for it. But the success of the second depended upon the quantity of milk and the way in which it was treated, and this was a difficult subject. There were many large and extensive dairies in this part of the country, and after what the inspectors had said about Mr. Butler's dairy, that it could scarcely be improved, it might be presumptuous in him to say anything upon that subject (*no, no! go on, go on*). But as he had paid great attention to this subject, and had visited the best dairies of Derbyshire, Cheshire, and Staffordshire, he might be pardoned for offering a few remarks. The making of cheese was a chemical process, and might be conducted upon much more scientific and certain principles than in many places. The great point was to procure a uniformity in the quality and flavour of the cheese, and this was rarely attained when it was made upon the chance principle. In the first place it was important that a dairy should have a northern aspect, so as to be as much as possible sheltered from the sun. It should also lie as low as possible, in order to obtain a supply of water to keep it cool. He had obtained a spring which ran through his dairy among the pans the whole night, and which kept the milk cool even in the dog days. He had a large plug in his dairy to take off the water, in the middle of which was a bore; when the water rose to within an inch of the brim of the pans, it might be turned off to prevent it filling the pans. The next thing was the steep, or rennet, as it was called in some places. The best plan was to get a portion of half a dozen skins and to mix a sufficient quantity of water with them, so as to obtain a steep of uniform operation. For instance, he would not recommend them to take a bit of steep for a particular making, but to endeavour to make enough, by mixing water with it, to last some time, which might be done by putting in salt enough to preserve it. There were various proportions used—his plan was to put in half a pint of water with so much steep as would make a cheese of 60*lbs.* Having the steep of equal strength, they would be enabled to put in such a quantity as would bring out the cheese of a uniform flavour and excellence. (*Hear.*) The next point was to pay particular attention to the heat of the milk, as well as the quantity of steep to be put to it. A thermometer was necessary to ascertain this; the usual test of the finger was a fallacious one, since it varied of course with

the heat of the body. He had convinced his dairy-maid, who had had some thirty years' experience, of this, and she was now so satisfied that she would do nothing without the thermometer. An incipient fermentation was frequently going on in consequence of the heat of the dairy, which could scarcely be detected, but by keeping his dairy cool in the manner he described—the temperature never exceeding 55 to 58 degrees—he had never had a curdled cheese in his life. (*Cheers.*) Mr. Minton went on to describe a graduated scale or glass, with which he was accustomed to gauge the vessel in which the milk was. Sometimes the cows, whether from being tormented by the gad-fly, or from other causes, did not give so much milk as usual. By means of this graduated stick, upon which the number of inches was marked, he could ascertain in the simplest manner the precise quantity of milk in the tub, and would thereupon apportion the proper quantity of steep to it. As the proportion of milk rose and fell, so did the quantity of steep; but this nice apportionment could not be attained merely by the eye, and sometimes accordingly a greater proportion of steep was put in than at others. No wonder, then, that a difference in the flavour of cheeses of the same dairy existed, when the strength and quantity of steep was left to chance, instead of being decided by certain and scientific principles. For himself, he had never had, during the two years' experience of this system, a single faulty cheese; and the flavour of his cheeses was so much alike, that he could not detect any difference between them. (*Cheers.*) The consequence was, that where his neighbours were getting 60*s.* per cwt., he was getting 70*s.* and 75*s.* He did not give them the exact proportion of steep to the milk, because he wished them to try and find that out for themselves. (Mr. Minton resumed his seat amid loud applause, the Chairman and other members remarking that his suggestions were deserving of the gratitude and attention of every farmer present.)

Mr. JACSON proposed the health of the Vice-Presidents of the Society. (*Great cheering.*)

Mr. CUNLIFFE returned thanks.—The happiness of a tenantry depended no doubt greatly upon the landlord, even when he lived at a distance. But it depended also still more, perhaps, upon the character of the agent who lived upon the spot. The noble Duke, their patron, was particularly fortunate in this respect, for, search the whole country through, they could not find one more able or more acceptable than their Vice-chairman—(*rapturous cheering, long continued*). Your applause convinces me that it is not necessary for me to say another word, so I will merely propose that we drink "Mr. Lamb's health" with three times three. (*drank accordingly with great enthusiasm, and "one cheer more" two or three times repeated.*)

Mr. LAMB rose and said, that he endeavoured to do his duty to his noble employer, and justice to the tenant; and when he had done that, and assisted in the improvement that was going on, he had done all he could do. He proposed "Mr. Clifton and the Lytham Agricultural Society."

Song.—Mr. T. Wilson.

Mr. JACSON, in corroboration of what had been said by Mr. Minton, knew that the principles laid down by him in cheese making were recognised in the best dairies of Cheshire and Derbyshire. The consequence was that instead of getting 60*s.* a cwt. for their Cheshire cheese, they got 70*s.* and 75*s.*

AGRICULTURAL MEETINGS.

We have now before us reports of the proceedings at several agricultural meetings, there are, however, two of the number which demand especial notice—the Wetherby and the Stamford. The spirit and energy displayed in establishing these societies, and in carrying out the arrangements for their first meetings just held, are not greater than we should have expected from the owners and occupiers of land in those respective localities. Great, however, as may have been our expectations, and sanguine as may have been the projectors of those societies, it is highly gratifying to see that the result has realized their warmest hopes. What triumphant evidence, if indeed further evidence were wanting, to prove that the establishment of a large and influential society, such as the Royal Agricultural Society, would not injure the local societies. There is scarcely a member of that society whose name is not found in the list of one or more local societies, not merely as contributing towards the funds, but assisting by his personal influence and exertion in carrying out their objects. So far from prejudicing the interests of local societies, it must be apparent to every impartial observer, that since the establishment of the Royal Agricultural Society, a spirit of emulation in every branch of agricultural economy has been roused, which, if properly encouraged, will be productive of great advantages to the parties immediately interested, and of the happiest results to the nation at large. The effect of the larger and more influential societies, is not confined to the United Kingdom, it extends to our colonies, even in the most remote parts of the British empire. We have now before us copies of the “Port Philip Gazette,” and “Port Philip Herald,” both of which contain reports of the proceedings at the inauguration dinner of the “Australia Felix Pastoral and Agricultural Society,” held on the 15th January last. At that meeting the chair was taken by Wm. Mackenzie, Esq., an honorary director of the Highland Agricultural Society, and a series of resolutions were passed for the establishment of the new society, “on the principle, and with the same object as the Highland Agricultural Society at home.” Thus, in this remote part of the empire has the example of the Highland Society been followed. In Canada the establishment of the Royal Agricultural Society is beginning to attract attention. The character of the society, and the effects it is likely to produce, have not escaped the vigilance of our persevering and talented friend and fellow-labourer, Wm. Evans, the secretary of the Montreal Agricultural Society. In a letter addressed to the Editor of the Montreal Gazette after having given a report of the proceedings at the Cambridge meeting, he observes—

“Independent of the Royal Agricultural Society, there are, perhaps, one hundred other agricultural societies formed throughout England, that must include in their members a vast majority of those interested in land, and engaged in husbandry. Almost all these societies have been lately instituted, and there cannot be a doubt that they will produce a great improvement in the system of agriculture in all its branches. Is it because the agriculture of Canada is in the most improved and flourishing condition, that we do not require societies similar to those formed in England, to promote

its improvement and watch over its interests? I may without hesitation reply to this, that the agriculture of Canada is generally neglected, and imperfectly and unprofitably managed—that the condition of the agricultural class is far from being in that flourishing state it would be capable of—and that the interests of the agriculturists are as little attended to in this country as in any other on earth. The object of this communication is to remind farmers and others what is done in England to advance the improvement of agriculture, and the prosperity of owners and occupiers of land, and perhaps it may urge those who love their Father Land, and would wish to follow the example set them by English people, to act as they do in England, and institute without delay such measures as may be necessary to promote the judicious improvement of Canadian agriculture, and provide for and watch over its interests. Those who pretend to admire England and her institutions, cannot give a better proof of their sincerity than by following her example when it is possible, and if they wish to see her institutions introduced into Canada, there is not one of them that can be more safely and beneficially introduced than the forming similar societies to those I have referred to, for the improvement and prosperity of Canadian agriculture.

I have, on former occasions, stated the various subjects to which the English Agricultural Societies direct their attention. Indeed they do not neglect any matter connected directly or indirectly with the improvement and prosperity of agriculture. We would require to follow the same plan. It is not by paying premiums for choice stock alone that we can accomplish the general improvement, and the due attention to our interests, that is necessary here. Let us follow the example set us in England, and we may expect similar results to be produced—men of all parties may unite in the good work.”

But to return to the first subject of remark, the Stamford and Wetherby meetings. Of the first of these meetings we need say little, having some time since accepted the kind offer of a friend to furnish us with a full report, we have given it place to the exclusion of many other matters of interest. A perusal of the report will be more satisfactory than any brief notice of ours. There are, however, two circumstances to which we cannot forbear to direct attention; the one, affecting the *means* of carrying out the objects of the society, the other, bearing upon the *mode* in which they may be carried out.

The treasurer announced that, after paying all expences, he had a balance of 294*l.*, which, with the subscriptions of next year, would give them about 594*l.* to carry on the society. This statement is conclusive as to the *means*.

The president, Sir John Trollope, read a letter from the Marquis of Exeter, accepting the office of patron of the society, accompanied with the following premium:—

“Premium of 40*l.* for the year 1841, offered by Lord Exeter:—To an arable tenant farmer, occupying not less than 200 acres, within the district of the Stamford Agricultural Society, whose farm shall be in the best state of cultivation. The judges are to take into consideration the state of fences and buildings, where the occupier does the repairs, as well as the quantity of manual labour employed upon the farm throughout the preceding year. The winner of the prize in 1841 is not to be eligible to enter into competition again for the same farm until the expiration of five years. Competitors are to send in their names to the secretary, with their abode, and the number of acres they occupy, on or before the 1st of January, 1841.”

The Noble Marquis is already well known as a distinguished breeder of cattle, and we are ex-

ceedingly gratified to find, that, notwithstanding his attention has been especially directed to that branch, he is fully alive to the importance of encouraging the arable farmer. His Lordship thus expresses his object:—"To encourage the arable farmer more than has hitherto been done by societies of this description." We trust that the propriety of so doing will be felt in other societies, and that the example of the Noble Marquis will be followed; at all events, this speaks well for the *mode* in which improvements in agriculture will be encouraged by this society.

The Wetherby Show, as a first meeting, was also eminently successful. Wetherby is a thriving and spirited town, in the centre of an excellent locality; its fairs and markets have long ranked amongst the very best in Yorkshire; from its district a great portion of the cattle for the consumption of the manufacturing districts have been taken; and it is surrounded by the seats of Harewood, of Goldsbro', of Newton Kyme, of Woodhall, of Ribston Park, Thorp Arch, and others, famous for their extent and the wealth of their occupants. All these circumstances pointed out this town as well adapted for an agricultural exhibition. The secretaries are James Coates, Esq., and John Rhodes, Esq., and well they deserve the thanks which were awarded to them. The Earl of Harewood presided at the meeting. The entries of stock were so numerous that it was found necessary to increase the number of judges, and Mr. Samuel Wiley, jun., of Bramsby, Mr. Richard Forster, of Southourn, near Driffeld, and Mr. Wm. Henlock, of Little Oureham, were appointed to adjudicate on the sheep and pigs.

A meeting of the Nithsdale Agricultural Society was held on the 15th Sept., at Thornhill, and we regret exceedingly that our limits will not enable us to give a full report of the proceedings, at a meeting of a society of which a nobleman so highly esteemed for his kind attention to his tenantry, and encouragement to agriculture, as his Grace the Duke of Buccleugh is president. We are compelled to limit our notice to an abridged statement of the remarks of Dr. Buckland—

The NOBLE CHAIRMAN then proposed "The Strangers" who had honoured them with their presence that day. He begged to couple with "The Strangers," in general, the name especially of Dr. Buckland, the distinguished guest on his left hand.

Dr. BUCKLAND rose, and was received with the most cordial tribute of respect. For the other strangers and for himself he acknowledged, in the most handsome and elegant terms, the hospitality of the meeting and of the county. He hoped he scarcely deserved the name of stranger. For upwards of thirty years he had been in most intimate association with many of the most distinguished men in Scotland. Strangers they might be called in one sense; but neither he, nor they in whose name he had the honour to acknowledge the kindness of that meeting, were strangers to the benefits which the spirited Society assembled at that table were conferring on the district; and few, indeed, in England, were strangers to the good done to this important portion of the empire by the distinguished nobleman who filled the chair, and by his noble consort. He was delighted with his visit to this valley, happily styled a beautiful valley. To the illustrious father of the friend on his left hand, much of this beauty was also owing. Under the fostering hand of Sir Charles Menteth, the barren field had been covered with luxuriant corn, the unsightly desert had been converted into waving woods. Under

his inventive genius, fire, water, and every element had been pressed into the service of agricultural improvement. How happy had he (Dr. B.) been to witness the gratitude of this neighbourhood embodied in that splendid testimonial lately conferred on Sir C. Menteth. You will pardon me (added Dr. Buckland) if I encroach so far on the order of the toasts of this evening, as to propose the health of that honoured gentleman, Sir Charles Menteth. (*Enthusiastic cheers.*)

Mr. James Menteth, amidst cordial cheers, acknowledged the toast with great feeling and effect.

Mr. HAWERSON, Auchencenzie, in brief but spirited terms proposed—"Earl Spencer, and the Royal Agricultural Society of England."

As a member of that Society, Dr. BUCKLAND acknowledged the toast. This was the fourth time within the year he had done so. He had done so on the first occasion in the presence of 2,500 occupiers of land in England; and on the second before 1,500 owners and occupiers of land. He had been called upon specially to do so, as representing the Geological Society of England, and as Professor of Geology in the University of Cambridge. For the agriculturists of the country were now beginning to understand how capable the study of geology was of being made to bear, immediately and practically, on agricultural improvement. Twelve months ago he had pointed out to the agriculturists of England a method of improving the land by mineral manure, not to supplant bone-dust, or any vegetable manure, but to co-operate with them. In connexion with this subject, and in elucidation of his own views, he would recommend to the meeting a work on subsoils by Mr. Morton, steward to the late Lord Ducie, containing the practical results of his experiments on soils, under 25 or 30 conditions of kind and quality. He would also recommend Mr. McGillivray's work on the influence of the geological structure on the agricultural capabilities of the earth. He confessed he himself had not read the work; but so struck was he with other writings of Mr. McGillivray, that he would now put his hand blindfold to anything he might write. Would the meeting pardon him, while for a few moments he should attempt to point out the proper bearing of geological knowledge on agricultural improvement? (*Veheement cheering.*) The stomach of the animal was a laboratory, by which hay, grass, and corn were converted into roast beef; but how were animals in their turn, and other substances of the earth to be changed into corn, grass, and hay, that necessary pabulum, without which all the successive generations of animals would be lean and die? Here the geologist and the agriculturist met. The two great points for the improver to secure were, first, dry land; and secondly, the necessary compound of the four or five elementary substances which enter into the composition of every good soil. From chemical and mineralogical analysis, it had been found that in alluvial land, confessedly the most fertile of all, the main component parts were *lime, silica, iron, and magnesia*, with some *manganese*; and therefore, of course, it became the chief feature of all improvement of the land, to secure the proper proportions of these ingredients, so as to produce as nearly as possible a result the same as alluvial soil, in which they were found in most efficient combination. *Silica* entered into the composition of everything, though it was deficient in the slate countries. There was more of it in oats than in any other grain. The oat-fed Scotchman had, therefore, more flint in his body than the natives of any other country; and hence, no doubt, the great superiority of the Scotch regiments. (*Much laughter.*) *Manganese* was comparatively a rare ingredient, but there was not a man in the room with hair on his head who had not *Manganese* in him. But no matter where and in what proportion these substances were found, nature had given us the lime-stone to make up or correct almost every other ingredient of soil. The learned Professor then minutely pointed out the rationale of the use of lime. In Lincolnshire, an agriculturist, in improving a peat bog, had induced every property of soil upon it, but without adding lime. The first season of crop there was plenty of straw and husks upon it, but

no corn. He was admonished of the deficiency, added lime, and next year had the finest oats in the country. This was quite parallel with the enterprising experiments of his own friend, Sir Charles Menteath, who had converted a useless peat bog into a meadow worth 4l. an acre. He would now conclude by acknowledging, as a member of the English Agricultural Society, that the Highland Society was its parent and model. Next year the place of meeting of the English Society was to be Liverpool. In the name and on the behalf of that Society, he invited all present before him to attend their meeting. (*Plaudits long and loud.*)

MEETING OF SUSSEX HOP-GROWERS.

The subjoined is a copy of the memorial agreed to at the Meeting at Hurst Green.

"To the Honorable the Lords of her Majesty's Treasury,

"The Memorial of the undersigned Owners and Occupiers of Land in the county of Sussex,

"Sheweth,—That hops are extensively cultivated in that part of the county of Sussex in which your memorialists reside, there being nearly 10,000 acres in plant.

"That the population being large, and dependent almost entirely on agriculture, renders it necessary that every exertion should be used to provide employment for that portion of the population which is dependent almost entirely on their labour for the maintenance of themselves and their wives and children.

"That the cultivation of hops affords much greater employment for the labourers than any other kind of cultivation.

"That the expenses attending the cultivation of hops are very great, being upwards of 20l. per acre, up to the picking or gathering the crop.

"That the capital employed by the hop-growers is to a very large amount; and although the crop, generally speaking, depends upon the exertions of the planters, yet the same is subject more than any other produce to the vicissitudes of the season, which will, at times, defeat the best exertions of the planters.

"That, for the years 1837, 8, and 9, the prices of hops were so very low, that, instead of the planters having a profit upon their produce, they had to sustain a loss, more or less heavy according to their respective crops; and the duty, which is 16s. 9½d. per cwt., falls exceedingly heavy in such years, and a portion of it must, in most cases, be paid out of the planter's capital.

"That, in consequence of such low prices and losses, the planters, as a body, were not in a situation to bear up against any additional pressure.

"That the Sussex hop plantations of the present year have been attacked with one of the most severe blights ever remembered, the grounds, in general, not producing a bushel an acre.

"That, in consequence of such blight, and the almost total failure of the crop, the planters will have to sustain the very heavy expenses attending the cultivation, without having any return; such expenses amounting to upwards of 280,000l. in the Sussex plantation.

"That the Sussex planters, therefore, are totally unable to meet the instalment of hop duty upon the growth of the year 1839, which will become payable in November next; the prices of that year's growth having been so exceedingly low that the planters had no opportunity of providing thereout for the payment of such instalment; inasmuch as the whole of the produce was required to provide for the payment of the expenses of producing the crop, and of the instalment of duty which became due in May last.

"That the Sussex planters generally derive no benefit from the present high price of hops, which is evidently caused by the severity of the present blight, and is altogether different from the effect produced by a partial

blight, when the shortness of the crop is made up, to a certain extent, by the advance in price.

"That, if the instalment of duty payable in November next should be enforced, it will be utterly impossible for the greater portion of the Sussex planters to provide means for meeting the various other demands upon them, and they will be more particularly unable to employ the labourers who depend upon them, and who, with their wives and children, already injured by the loss of the hop-picking, which brings to each family from 3l. to 7l. in a crop year, will be further reduced to such a state of distress, suffering, and destitution as cannot be contemplated without fear and dismay.

"That many of the most influential gentlemen of the county have yielded to the entreaties of the planters, and have sanctioned the present application for postponing payment of the instalment of duty, payable in November next, till November, 1841, believing it to be an application warranted by the unexampled severity of the pressure, and one which may be granted without injury to the revenue.

"Your memorialists therefore pray that your Lordships will take all the above circumstances into consideration, and will give directions for postponing the payment of the second instalment of hop duty on the growth of the year 1839, from November next, till November, 1841.

"September, 1840."

HOP DUTY.

Fluctuations of the estimated Duties taken fortnightly, from 1802 to 1840, and also the actual amount of Duty paid in those years, extracted from a table by Messrs. W. and A. Dank, Borough, London.

Year	May		June		July		August		Sept.		Duty paid.		
	27th to 28th	28th to 24th	7th to 24th	24th to 24th	7th to 24th	24th to 24th	7th to 24th	24th to 24th	7th to 24th	24th to 24th	£	s.	d.
1802	100	00	80	00	60	38	28	25	22	14	15463	0	54
1803	125	115	140	150	160	165	170	160	170	160	196206	1	104
1804	95	95	100	120	140	165	175	150	180	180	177817	9	9
1805	90	90	80	54	45	28	19	22	30	27	32904	12	72
1806	110	130	120	140	145	155	155	158	170	170	153102	18	2
1807	100	85	100	65	50	45	60	75	80	90	100071	15	2
1808	120	150	140	160	190	200	200	235	230	300	251089	15	7
1809	70	70	50	50	50	50	55	60	65	58	68452	18	2
1810	150	130	120	95	80	85	82	85	94	80	73514	0	114
1811	140	88	130	180	105	105	150	160	150	150	157085	19	24
1812	100	95	85	75	65	45	40	40	42	29	30581	19	34
1813	140	120	110	125	135	150	145	155	140	132	131481	9	2
1814	115	105	105	125	148	154	150	142	148	140	140292	6	24
1815	100	84	75	100	70	85	85	95	84	100	128878	16	34
1816	140	130	145	150	155	135	130	110	55	50	46302	5	94
1817	150	135	100	90	90	90	83	71	88	80	60522	2	64
1818	150	140	150	140	140	95	125	150	145	160	109465	13	6
1819	120	98	110	112	110	140	170	210	225	250	242076	2	2
1820	140	130	115	180	120	100	75	75	90	75	138390	0	64
1821	110	115	110	110	110	150	155	180	200	180	154600	10	84
1822	100	98	110	130	130	180	125	160	200	200	203724	14	04
1823	105	120	90	70	60	30	30	20	28	20	29058	13	44
1824	110	100	125	150	125	145	145	150	180	155	148832	0	04
1825	120	85	55	45	26	17	24	20	30	22	24317	0	114
1826	120	140	150	170	190	195	205	220	250	250	206331	0	04
1827	121	60	55	55	45	110	100	110	130	140	148848	6	2
1828	125	85	140	165	180	190	180	100	205	175	179227	10	14
1829	130	130	80	60	40	39	36	32	37	35	39666	10	64
1830	120	100	150	115	90	100	120	90	105	85	88047	8	14
1831	120	105	130	160	140	140	145	150	182	165	174804	10	14
1832	130	128	120	150	140	150	160	160	142	130	130018	4	34
1833	130	140	170	170	180	167	105	155	155	155	156905	4	34
1834	130	110	95	95	80	90	105	183	158	172	169713	14	24
1835	120	125	155	185	210	105	225	230	245	250	235207	2	114
1836	130	165	165	180	245	225	100	165	205	205	206322	12	114
1837	150	155	155	155	160	200	200	190	180	180	176578	3	64
1838	155	165	160	130	160	175	165	160	160	150	171566	8	104
1839	162	160	200	200	200	210	240	220	220	220	205537	13	7
1840	150	155	150	120	80	45	40	35	32				

N.B.—The figures under the heads of May, June, July, August, and September, represent thousands: thus May 4, 1802, 100 implies 100,000.

LANDLORD AND TENANT.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—In the reports you have so liberally given us of late, of the subjects discussed and to be discussed, by the members of the many farmers' clubs so recently established, I have been much surprised that not one of them, as I have seen, has had (need I say) the boldness to attempt a discussion on the very ground-work of all good farming, *The best adapted holding, covenants, and conditions, which should form the basis of agreements between landlord and tenant.* I am the more surprised at this, because some of your correspondents have loudly called attention to the subject, and the members of these clubs seem particularly qualified to enter into a calm and unprejudiced debate, composed, as one would believe them to be, at least the debating members, of sound practical men, on all matters connected with their profession; and having the double advantage of their being both sides of the question (that is, landlords as well as tenants,) present, and neither stimulated to give undue weight to their ideas, as is generally the case when these two parties meet to discuss it under different circumstances. There could be no doubt of good and important information resulting from it, if properly discussed under its different heads, which seems to divide itself into three, viz., 1st. the holding. The most advantageous length or number of years for agreement or lease, the length of the time for notice to be given to terminate agreements. 2ndly. Covenants. These could only be discussed on general grounds; say, the advantage or disadvantage in their being very restrictive, what should be their nature in the last two years of lease or agreement. 3rd. Rent; whether fixed or fluctuating, according to price of corn, that is, a per centage off or added as corn rises or falls, or a corn rent, wholly or in part; the price of corn to be regulated by a seven years' average or one year's average; whether part according to price of wool, and part according to price of corn, &c., &c.

These seem fair and legitimate matters of debate, upon which, doubtless, a variety of opinions are held, and I have no doubt much light might be thrown on them, which could not fail to produce a strong tendency to unanimity of acting among all parties—a thing greatly to be desired.

I trust you will not think me trespassing too much on your time and paper by my sending you a few remarks of my own, connected with this subject, which may not have struck any of your readers, and are not worth much, only as they may give hints to some one more talented and experienced than myself to improve on, for we all know many useful hints are taken from where we least expected to get them. Now no one will, I think, doubt the desirableness of long leases, on poor but improvable land especially. I was much struck with the truth contained in the contribution of your correspondent, Radix (April No.) I believe him to be quite right when he says, "we want a ground-work for our exertions," a security that they shall benefit us to the full extent which our industry and outlay of capital entitles us to. With the present system of yearly agreements, or other short terms, this cannot be, unless some means be devised by which a tenant shall have confidence he will be reimbursed. Every improvement made, should be made permanent, or half of the value of it is lost to the public. Now as we cannot expect that landlords will (if tenants were willing,) at any

very short period of time, grant leases of sufficient duration to make tenants comfortably secure in the outlay of capital in what might be deemed judicious improvement, the best way is to look about us, and see (as is frequently the case) if we have not the means close at hand—at least if not to arrive at the perfect confidence to be given by a long lease, to improve considerably the present connexion between landlord and tenant. I mean to give to an out-going tenant of a farm such an interest, even in leaving it, as shall stimulate him then, to pay attention to the improving and ameliorating his land. I would propose therefore, that every landlord on letting his farm should have a very minute valuation made, extending over at least the last 4 or 6 years of the occupation of the previous tenant. This valuation to be preserved as shewing the value of the tenant's interest in the land at the beginning of his occupancy; and at the end of his term a similar valuation being made, the difference either way to be paid or received. No landlord I think could object to pay, as he might safely put on in rent 5 per cent. for any sum paid on an out-going tenant for improved condition of the farm, nor could he object to the security, as any depreciation of the cultivation by a new tenant would, under such an agreement, be to be paid him again on this tenant's quitting. This, as you must be aware, is starting no new principle, and differs only from customs now in existence in many districts in two particulars; and these I must think improvements on the valuation extending only to two years, the longest time I have ever met with, that is, including half fallows and half dressings, as they are technically called, and also the amount of such valuation remaining in the tenant's pocket during his term, and the difference only of the incoming and outgoing valuation being matter for adjustment.

I have often thought it would be most valuable information as shewing, in a comparative degree, the effect of the different customs of letting and entering on farms on the systems of husbandry, pursued in various localities, if we could obtain correct information of the customs generally prevalent in a given district, and the state of agriculture in that district. Through a series of questions addressed to the members of the many farmers' clubs now established in different parts, and to be answered by the members collectively, no doubt a great fund of information might be gathered. My own experience would lead me to believe, that the influence which these customs have, is very great; and if I am right, nothing surely could be so convincing as the testimony borne to it from so indisputable a source.

I remain yours,

Up-marden, Sept. 28th.

EDWARD WYATT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In the *Mark Lane Express* of the 24th ult., "An Irishman" wishes to be informed, what is in and in breeding? The question is a very simple one, and put with seeming sincerity.

I consider judicious in and in breeding, to be the first establishing a breed of animals with as few faults as possible; then from that time excluding all strange blood, and with a watchful eye, and on scientific principles, keeping for breeders such only, males and females, as have arrived nearest to perfection; caring not

a straw in what degree of relationship they may chance to be to each other, or as is so much better expressed by Sir John Sinclair, who says, "When a race of animals have possessed, in a great degree, through several generations, the properties which it is our object to obtain, their progeny are said to be well-bred, and their stock may be relied on; and it cannot be doubted that any breed may be improved in the same manner."

And should "Irishman" desire an illustration, I beg to refer him to that eminent sheep-breeder, Mr. V. Barford, of Foscoate, near Towcester, Northamptonshire, who has strictly in-and-in-bred, entirely from his own flock, sire and dam, from the nearest affinities, and without an interchange of male or female from any other flock for the last thirty years; and now his sheep are fine in wool, with aptitude to fatten; superior mutton and small in the bone, handsome in symmetry and hardy in constitution.

I am, Sir, yours, &c.,
A LOVER OF IMPROVEMENT.

ON PREVENTING SMUT IN WHEAT.

SIR,—I observe, from the letters of several of your correspondents, that the preparation of seed wheat, so as to prevent smut, is an object which excites much attention at the present time.

During the many years of experience I have had, I have found lime and water, judiciously applied, to be quite strong enough for the cure, and stronger applications often injurious. I have never suffered loss on account of smut, and my rule is, to mix (the day before sowing) the seed wheat with quick *caustic* lime, and water it afterwards, letting it lie on floor until next morning 12 inches thick, and next morning moistened before put into bags. It is important to mix wheat and lime dry, that the lime may find its way into the tufts and crevices of the wheat.—Yours respectfully,
Nottingham, Sept. 8, 1840. S. R.

NITRATE OF SODA.

SIR,—In answer to O. D., Cheshire, I would, in the first place, say that nitrate of soda will not exhaust the soil, be it siliceous, a stiff loam, or any other soil. I do not say that the soil is of no consequence in the application of nitre, and that the benefit will be the same on all soils. No rule can possibly be laid down, owing to the diversity of earths. The farmer must find out by experience where the dressing will do most good, and whether the crop will be benefitted enough to pay for the outlay.

All nitre, whether nitrate of soda, potash, or lime, contains a great quantity of oxygen, which goes to the nourishment of the plant and increases its productiveness. Nitre cannot be serviceable only to one crop; a minor part may enter into and unite with the soil, but that is not the fertilizing part; the conclusion we are to arrive at, then, is that repeated applications will benefit succeeding crops. One more word respecting soils: a farmer ought, in the present advanced state of agriculture, to be able to analyze the different soils that he has to cultivate, and then he would be able to judge what sort of manure or what top-dressing would suit best—all we want is pabulum for the plant.

SENEX.

Ipswich, Sept. 10th.

LLANDOVERY DISTRICT AGRICULTURAL SOCIETY.

The autumnal general meeting and cattle show of this society took place on Wednesday, the 16th September, at Llandovery. The show of cattle, &c., in the Castle Yard, although not so large as might have been expected, exhibited some good specimens of well-bred cattle, of the black or Castlemartin, and the red or Hereford breeds. The Castlemartin bull and cow exhibited by Mr. Prosser, of Llwynjack, were fine animals, well deserving the distinction they obtained. The Hereford cow and heifer exhibited by Mr. Jones, Cynghordy, bore away the prizes in the red classes. The Hereford cow and heifer sent in by Mrs. Rees, of Tonn, were much admired, as also were the fine Hereford bull and other cattle exhibited as extra stock by Edward Jones, Esq., of Velindre. It seemed to be the general regret, that the present funds and regulations of the society did not admit of premiums for extra stock. There were some fine specimens among the sheep, but the show in general was not equal to last year. Among the young horses entered for the prize cup, we noticed, besides Mr. Jones, of Cynghordy's colt, which won the cup, a handsome filly belonging to Mr. Powell, of the Castle Inn. The weather was rather unfavourable, cold stormy showers of rain poured down at intervals all the morning, which rendered it an unpleasant task for the Judges (Mr. Thomas Jones and Mr. Daniel Saunders) to decide upon the merits of the different animals exhibited for competition. After a careful and minute inspection of the various animals according to their respective classes and numbers, they drew up the following report, which was read by the President after dinner, the Hon. Secretary stating the names of the successful candidates and amount of premiums:—

CATTLE.

Class I. Lowland Black or Castlemartin Breed.		
No.		£ s.
2	Best bull, Mr. Prosser, of Llwynjack, premium	3 0
6	Best cow, do.....	3 0
16	Best heifer in calf, Mr. James Jones, of Llwyndewy	2 0

Class II. Highland Black or Castlemartin Breed.		
15	Best cow, Mr. D. Joseph, of Aberdlynant ..	3 0
21	Best heifer, do.....	2 0

Class III. Lowland Hereford Red, &c., Breed.		
3	Best bull, Mr. D. Lloyd Harries	3 0
10	Best cow, Mr. Jones, of Cynghordy	3 0
19	Best heifer, do.....	2 0

Class IV. Highland Hereford, Red, &c., Breed.		
4	Best bull, Mr. D. Price, of Penrhiw	3 0
14	Best cow, do.....	3 0
20	Best heifer, Edward Richards, Cringoeid, nominated by his landlord, Mr. W. Rees, Llandovery	2 0

SHEEP.

Class I. Lowlands.		
23	Best ram, not exceeding two years old, Mr. Jones, Llwyndewy.....	1 0
26	Best ram, exceeding two years old, Mr. L. Walters, Cwmbrane	2 0
30	Best pen of five ewes, Mr. Jones, Llwyndewy ..	2 0

Class II. Highland or Mountain.		
36	Best ram, not exceeding three years old, Mr. D. Price, Penrhiw	1 0
40	Best ram, exceeding three years old, Mr. D. Joseph, Aberdlynant	2 0
43	Best pen of ten ewes, do.....	2 0
44	Boar, Mr. Jones, Llwyndewy	2 0
43	Sow, Mr. D. Price, Penrhiw	1 0

Silver prize cup, value five pounds, presented by Mr. Jones, of Llwyndewy, for the best brood mare and colt.

48 Won by Mr. Jones, the donor; who nobly presented

the cup to the society as a prize cup for next year's competition.

Silver prize cup, value five guineas, presented by Messrs. Powell, of the Castle Inn, and Havard, of the Lamb Inn, for the best colt or filly suitable for riding or driving.

56 Won by Mr. Jones, of Cynghordy's three years old colt.

Silver prize cup, value five guineas, presented by Mr. Jones, of Cynghordy, for the best cow of any breed.

10 Won by Mr. Jones, the donor, who generously presented the cup to the owner of the second best cow.

8 Mr. T. Davies, of Cefntrenfa.

The Judges, Messrs. Jones and Saunders, were not required to make any report of the extra stock; but they beg to state that among the entered cattle, they recommend the following as deserving favourable notice, as possessing considerable merit:—

5 Black cow, Mr. Jones, Llwyndewy.

7 Red cow, Mrs. Rees, Tonn.

17 Red heifer in calf, Mrs. Rees, Tonn.

Mr. Price, of Coedmaur, the Society's Inspector of Draining, and Turnip and Potato Crops, made the following report:—

DRAINING.

1st premium, Mr. Jones, of Cynghordy, 220 perches	£5 0
2nd, Mr. M. Rees, of Tynywaun, nominated by his landlord T. W. Lawford, Esq., 181 perches	3 0
3rd, Mr. Morgan, Llywyncynhyris, 104 perches	2 0

TURNIPS.

1st premium.	
2nd, Mr. Morgan Rees, of Tynywaun, 3½ acres	3 0

POTATOES.

1st premium, Mr. D. Jeffreys, of Ystradwalter, 4½ acres	2 0
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Although the unpropitiousness of the weather made it unpleasant in the show-yard, it did not deter a very respectable and numerous assemblage at the dinner table at the Lamb Inn; upwards of eighty sat down to enjoy the good cheer provided by mine host and hostess, Mr. and Mrs. Havard, who evinced their judicious catering abilities in the excellence and profusion of their viands. The worthy President, the Rev. E. H. G. Williams, was supported on his right by Col. Wood, M.P. for Breconshire, Mr. Neave, Mr. Lawford, &c.; and on his left, by Col. T. Wood, M.P. for Middlesex, Capt. Price, R.N., Capt. Wood, &c.; the Vice-President D. Jones, Jun., Esq., was supported by Mr. J. Morgan, Mr. Sayce, &c. After the cloth was removed, the "Queen," "Prince Albert," "Queen Dowager and Royal Family," and a few other toasts were given by the President, previous to the reports being read, which were drunk with loyal ardour and enthusiastic cheers. The announcement of the successful competitors by the President, gave general satisfaction; and as each name was given out, the successful party received the cheering congratulations of the meeting. The health of the President was then drunk with musical honours and every demonstration of respect. In returning thanks the President entered minutely into various agricultural topics,—such as draining, a subject that deserved peculiar attention by farmers in this wet and humid climate; subsoil ploughing, and sowing grain with the drilling-machine, required to be more known to be duly appreciated; the valuable improvement of all lands by the cultivation of turnips, and other green crops. He also recommended the short-horn Durham breed of cattle as very profitable. Col. Wood's (the member for Breconshire,) health being drunk with enthusiasm and musical honours, the gallant colonel rose and returned thanks in an able speech, wherein he explained the different modes of cultivating various soils; and that by good and judicious cultivation, we should ensure an increase of good fodder, and consequently improve the size and quality of our cattle. He instanced the improvement that had taken place in the county of Brecon within his own memory, by the introduction of the

Hereford breed of cattle, which had been found much more profitable to the farmers than any other, so that the old stunted breeds were nearly all gone; and the farmers became sensible of the utility of paying attention to the good cultivation of their grounds, which brought in such ample returns of profit for their outlay and industry.

The "Army and Navy" next followed, accompanied by the name of Col. T. Wood, M.P. for Middlesex. The Colonel in a neat speech, returned thanks for himself, and also as representative of the army. Capt. D. Price, R.N., in a neat speech, also performed the same office for the Navy. Several other appropriate toasts and sentiments received due honours; many excellent speeches were delivered by the Vice-President, Mr. Neave, Mr. Lawford, &c., &c., and conviviality and harmony were kept up to a late hour.

AGRICULTURAL LIBRARIES AND FARMERS' CLUBS.

We notice with much satisfaction a proposal for establishing a Corn Exchange, News Room, &c., in the town of Great Driffield, in Yorkshire. A sensible and well conceived appeal is made to the influential inhabitants of that neighbourhood, in the prospectus which will be found in the next page. We entertain no doubt that the proposition will be carried out, and we hope that the opportunity will be embraced to establish a Farmers' Club, and to provide a room for meeting in some part of the building.

At Oakham a handsome room has been erected for the express purpose, and the club contains, we believe, upwards of two hundred members. There should also be accommodation provided for the formation of an agricultural library and museum, and as a building is to be erected for a corn exchange the additional expense would be very trifling. There never was a better opportunity for providing the means of solid improvement amongst the agricultural class of the neighbourhood than this proposition holds out. It is proposed that the funds be raised by shares of ten pounds, and in order to provide for the scruples of persons who might be anxious to promote the undertaking, but unwilling to become shareholders, the provisional committee has very wisely opened a donation list. We are informed that Sir Tatton Sykes, Bart., of Stedmore, has subscribed one hundred pounds to the donation fund, and we hope his excellent and liberal example will be followed by others. Let there be no squeamishness about the amount of subscription—he who gives a sovereign is entitled to as much credit as he who subscribes a hundred sovereigns, if it be in proportion to his ability.

As somewhat akin to this subject, we are most happy to notice an announcement made by Lord Stanley, at the meeting of the Liverpool Agricultural Society, on Thursday last (of which meeting we shall give a report in our next), of a plan which he has in view for the establishment of an agricultural library in Liverpool. The noble Lord stated—

"The object he had in view was simply this—to establish in that great town, the mart in which the agricultural interest of the county was centred, a

leading agricultural library for the farmers of the district (*chers*). He had ascertained that at a very small expense a room could be provided, which might be opened every market day, and a person to be in attendance to give out books. He purposed that the library should consist principally, but not exclusively, of the most approved works on agriculture; and with a view to make it what it ought to be, he had been in correspondence with the Secretary of the English Agricultural Society, by whom he had been furnished with a list of books most suitable; and it gave him pleasure that that list numbered the works of Mr. Hillyard, a most scientific farmer. He (the Chairman) had asked for no subscriptions from the gentlemen of the county; in fact, he had prohibited subscriptions exceeding 5*l*. He had received from 2*l*. to 5*l*. from J. Blackburne, Esq., who sat on his right, than whom there was not one who took a greater interest in the society; from Lord Sefton, Skelmersdale, and Derby; from Sir Thomas Stanley, C. Scarisbrick, Esq., Wilson Patten, Esq., M.P., Bold Houghton, Esq., and R. B. Wilbraham, Esq., and the cordial assistance of all the landowners who had an interest in the Liverpool market. He asked the tenants to subscribe the large sum of five shillings a year, and for that sum he offered to every tenant the privilege of coming on any market day to the room devoted to the library, and of overlooking a well provided library of practical works on agriculture; of taking home a work, reading it in the evening, and keeping it till he had well perused it (*loud applause*). He had issued a circular some time ago on the subject, but which might not have fallen into the hands of many. He, however, wished all who might take an interest in the matter, to meet him that day fortnight at the room of the Neptune, where they could talk over the matter, and receive the names of those who wished to become members."

This should operate as a stimulus to the inhabitants in the neighbourhood of Great Driffield, to adopt the suggestion we have made above.

PROSPECTUS FOR A CORN EXCHANGE, &c., IN GREAT DRIFFIELD.—The trade of the town of Great Driffield has so much increased during the last 30 years, as to render the market the most important to agriculturists of any in the East Riding, and the market place has consequently become much too small for the business to be transacted in it. The dealers in butter, fruit, and vegetables, with a few other small tradesmen, occupy nearly the whole space, whilst the corn-factors and farmers are driven into the centre of the public street, where they experience much inconvenience; and even if the market place was sufficiently spacious, there is no shelter whatever from the inclemency of the weather. It has long been thought that the erection of a corn exchange would go far to remedy the evils complained of, but there has been considerable difficulty in obtaining a suitable site.—A piece of ground situate in the New Road, nearly opposite the post office (which is considered very desirable for the purpose) has now been met with, and can be purchased at a reasonable price. A few gentlemen have formed themselves into a provisional committee, and it is proposed to erect a Corn Exchange, Assembly Room, News Room, &c. which are estimated to cost about 2,000*l*. and to raise the funds necessary for the purpose in 200 shares of 10*l* each; and it is hoped, that the public spirit of the East Riding will be excited on the occasion, Driffield being the centre of an extensive and enterprising agricultural population. The corn-factors and millers will be accommodated with stands in the corn exchange, at a moderate rent, and the other rooms will be available for all public meetings, of a civil, moral, or religious character, at reasonable charges. So soon as half the required number of shares have been taken, a public meeting will be called, when a managing committee will be appointed to carry out the undertaking. The corn exchange being erected, it is intended that the corn market shall commence at 11 o'clock in the fore-

noon, and end at 1; and the butter, poultry, and fruit market commence at 10. It may fairly be presumed that this alteration will be of considerable advantage to the town, in ensuring the attendance of a number of farmers and other persons from the more distant parts of the neighbourhood, and in promoting the comfort of the tradesmen, who at present is in the afternoon of the market day in a state of confusion and bustle, while in the morning he is comparatively unemployed. To the cottagers and others attending with butter, poultry, &c., such an alteration must also be desirable, as they are frequently detained in winter until it is nearly dark, before they can dispose of their produce, and after this have to make their little marketings, and walk several miles in the country. It has been considered that many of the influential land owners of the neighbourhood may wish to further the undertaking, and still be unwilling to become shareholders in a Joint Stock Company, a donation list will be opened, and all contributions in furtherance of the object will be thankfully received.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In answer to your Exeter correspondent, signed "S. T.," it appears to me that the hand-thrashing machine I use, chiefly to employ my labourers in bad weather, might suit him. It will *cleanly* thrash out in a day six quarters of wheat; requiring to work it—six men, two youths, and one boy. Four men to turn, one to feed, and one to separate the corn from the straw; two youths to take away and stack the straw, and one boy to supply the feeder. The cost of the machine is 14*l*.

C. HILLYARD.

Thorpeland, near Northampton.

There are many good hand-thrashing machines made by different manufacturers.

HARVEST HOME.

Come hither, old neighbour, we've done with our labour,
The harvest is home, as ye all see;
There's plenty in store, and our dangers are o'er,
And tempests no longer appal me.
We've ploughed and we've sown, and hard toil we have known,
With the lark we have risen at morning;
The sickle we've plied, and the sheaf we have tied,
The life of the sluggard each scorning.
Whate'er may befall, we are true Britons all,
Stout-hearted is every bold yeoman;
Though our fathers are dead, we here stand in their stead,
The sons of the old British bowmen.
Were his country in need, none so ready in deed
To fight for her weal and her honour;
With his face to the foe, ever onward to go,
That freedom might settle upon her.
Come, neighbour, your hand, and wherever the land
Of Britain extends to the ocean,
We'll stand by the throne, that our fathers have known,
The bond of their loyal devotion.
And should ever a foe wish the yeoman to know,
He'll find him still fearless in danger;
Sound as oak at the heart, without cunning or art,
And a friend to the poor and the stranger.
Let others delight in their skies ever bright,
And talk of their orange and myrtle;
But Britain for me, with its true liberty,
Fair daughters, and acres so fertile.
In a tankard of ale, we old neighbours will hail;
And spite of each idle alarmer,
Full loudly and long, we'll re-echo the song—
"Long Life and Success to the Farmer!"

ON THE ADULTERATION OF BONE-DUST.

By MR. JAS. HALKETT, NEW SCONE, PERTSHIRE.

Having been for the last ten years engaged in the bone trade, I have had considerable experience in the quality of bone-dust, and have been a pretty attentive observer of its operation on different soils and in different seasons. I shall, therefore, now endeavour to give a statement of some of my observations on the subject, and shall commence with the article itself, about the qualities of which I am sorry to say much misapprehension exists.

It is useless to state, that bones now-a-days are not allowed to lie about the pastures, in order to give the cows a day's unprofitable work in chewing them. But that, since their value has been ascertained, they are now much better taken care of, and few are lost either in town or country. So that the necessary paraphernalia of a farmstead cannot be complete, without a large old cask in the inner corner of the cart shed, or some other place, to collect them in, and to which a cover is indispensable, to keep out dogs, cats, and rats, all of which would purloin them without such precaution.

Bones are collected in great quantities in London: the bone-boilers there send round their spring-carts every day to the butchers, to inns, eating-houses, &c., for the purpose of collecting them. After they are taken home, men are employed with short-handled axes, to chop them into small pieces on a stock, and pitch them into the boilers. When well boiled the fat is skimmed off, and as the bone-boiler is generally also a soap-boiler, part of it is used for soap, and the coarser part for coach and cart grease. When the bone-boiler has a bone-mill he does not require to chop them with axes, but puts them through his coarsest breaking cylinders, and then into the boilers. When no more fat can be extracted the bones are then put out to the yard, where I have seen stacks of them as high as a three-story house. They are afterwards sold to the crushers at so much per chaldron, which consists of thirty-six heaped bushels. It may be asked why they are sold by measure, and not by ton, as foreign bones are? But the measure for them is by far the fairest, as if sold new from the boiler, and consequently very wet, a chaldron of them would weigh nearly double what they would if dry; but by the chaldron, whether wet or dry, you have nearly the same quantity. A considerable quantity of these bones are sent to Hull and other towns along the east coast, and there are several mills in London which crush them.

Although thus an immense quantity of bones are yearly collected in Britain, how would all these satisfy our enormous consumption, were it not for the quantity imported from the Baltic and other ports on the continent. There is hardly a seaport town on the east coast of England or Scotland (what may be on the west I do not know) of any consequence, which has not got one or more bone-mills, and yearly imports a number of cargoes of foreign bones. But the great emporium is Hull, where I have seen thirty or forty cargoes at once in one dock delivering, or to be delivered, of bones. These were destined to be crushed in and around Hull, and quantities were transferred to river sloops, to be carried into the interior of the country.

The declared value of the bones imported into

Britain in 1823 was but 14,395*l.*; in 1837 it was 254,600*l.*, and since that must have greatly increased. They are almost all ordered from commercial houses in Hamburg, who have ramifications in every seaport on the continent, and are shipped in foreign bottoms at much less freight than they could be in British ships. The duty here is one per cent. on the value. But as we want them, and they do not, some of the foreign powers are proposing to impose a duty on them. The cargo and freight are, for the most part, paid on the quantity delivered by the custom-house scales, and a cargo always comes short of what it is stated to contain.

Bones are always crushed for manure by toothed-cylinders, of which some mills have three pairs, others two, and some only one. In Yorkshire the bones are ground into three sizes; the first is made to pass through a sieve of little more than a quarter of an inch calibre, the second is called half-inch, but I have always found it too large to pass through a half-inch sieve, and the third is inch-size, which, in this neighbourhood, we consider too large for turnips. The crushers there never mix them unless you order them to do so; on which they measure them for you separately, and when so mixed, the small falls in between the pieces of the larger size, and when you come to measure it again, you will find that you want nearly a third of your quantity.

The first of these I consider to be the worst in quality; it consists of earth and sand that have accidentally got into the inside of the hollow bones, the rotten carious parts of them, and those extremely old ones which go into powder on the first touch of the cylinders. On the other hand, there is most matter of some kind or other in a bushel of it. It is far heaviest, will spread furthest over the land, will braid the turnips first, and rush them on fast for a while, but I have often known it desert them long before it should have done so.

The second kind is, when made from good bones, free from the impurities of the first, but when sown by itself, is long in decomposing, long in braiding the plants, and will bring them on but slowly at first, yet, when they do come, will stand by them to the last.

The third kind is never used in this neighbourhood, although quantities of it are shipped to the north of Scotland. But I will recommend that the first and second kinds should be mixed in equal quantities before sowing—the first to braid the turnips, and carry them on before the second is ready to take up its place. And as for the third or drill, that it should be recrushed, and all made to pass through a half-inch sieve, and then I would give it the preference to any of the other two.

In this quarter, viz., in Perthshire, there is seldom any size made but the half inch, with the dust amongst it, just as it comes from the cylinders, which is found to answer best with the turnips. True it is, that if the small and the great were kept separate, there would be more bushels in a ton, and consequently it would pay the crusher better. But as the mixed dust is found to answer best for the raising of turnips, there is no reason for their ever being separated.

I find that numbers of agriculturists, and even scientific men, who have analyzed bones, are of opinion that the marrow and fatty matter in them are of great use in their operation as a manure; and I must confess that at one time I was led to believe, from its plausibility, and what I thought

a common sense view of it, that this was the case. But now, after the test of experience, by numerous trials, between what we call green bones with all the marrow and fat in them, and dry ones free from it, I have always found that the latter raised by far the best crops. Therefore, I have arrived at the conclusion that the less animal fat in them the better, and that the boiling of them before crushing, instead of injuring them, is a benefit.

The next part of the subject I would treat of, I consider to be the most unpleasant part of the duty I have imposed on myself. But although the old adage says, "there is roguery in all trades but ours," I shall proceed to shew, that the bone-trade is not exempt from it, but, on the contrary, there is more deception in it than in almost any other.

There is a great outcry with some agriculturists to have their bone-dust very small; now, this predilection for dust is the cause of their being so often and grossly deceived. If bones be in small pieces, it is easy to detect any other substance amongst them, but if reduced to a powder, it is not so easy to discover if there be any thing else mixed in it.

Several ingredients are used in the adulteration of bone-dust; the first I shall mention I have found to be the most extensively employed, viz. the lime that has been used in tan works to take off the wool and hair from sheep and other skins. It is at first clotted in lumps, and put through the cylinders of the bone-mill; the wool and hair are taken from it, and it is then mixed with a proportion of bone-dust; it appears very small, has a very pungent smell, and, on the whole, pleases the unwary wonderfully.

I am aware that this mixture has often raised a good crop of turnips in damp seasons. I have likewise known it destroy the seed entirely, when good bones beside it did well. I have no objection that it should be used as a manure for turnips, but why call it bone-dust, and not sell it for what it is? I once saw it used by itself, without any admixture of bone-dust, and it proved an utter failure; and I am led to believe that it is the small quantity of bones in it that sometimes raises the crop without any assistance from the lime whatever.

Old plaster lime is also used for the purpose of adulterating it, but I have not seen it in dust nearly to the extent of the former. I need scarcely say that it is smell-less and useless, and should any bits of it be left that is not absolutely reduced to powder, it is easy to detect it, as you will see the hair sticking in it.

Soap boilers' waste is also used; it is of a bluish-white colour, and very small, but how it operates on the crop I have never had experience.

Dust that is all of a very white colour is made from bones from which a previous manufacture has been taken, such (I understand) as sal ammoniac, &c.; it is of a very hot nature, and, like the tan-pit lime, apt to burn the seed in dry seasons.

These, saw-dust, slaked lime, rotten wood, and numberless other ingredients, are used in the adulteration of bone-dust. And when the purchaser has not the opportunity of watching the process of manufacture, but buys that which is imported from another port, it is absolutely necessary to examine it thoroughly before purchasing; and were agriculturists to pay that attention to the quality of the article they purchase which they should do, the machinations of the adulterator would prove unavailing.

EXPERIMENTS WITH NITRATE OF SODA.

By DAVID BARCLAY, Esq.

To the Secretary of the Royal Agricultural Society of England.

SIR,—Nitrate of soda having become an object of considerable attention for agricultural purposes, I have made several practical experiments with it on my own farm, and have also sought information from some of my neighbours who have used it as a manure, and on whose accuracy and care in their experiments great reliance can be placed. As it will probably be interesting to many members of our society to be informed of the results of these inquiries and experiments, I will proceed to describe the details of them:—

I addressed the following questions to my neighbours—Walter Calvert, Esq., of Ockley Court; Messrs. Drewitt and Son, of Piccard's Farm, near Guildford, of high reputation in this country as practical farmers; and, to Mr. George Dewdney, of Dorking, eminent both as a farmer and a miller. I addressed myself to these gentlemen, knowing that they had used nitrate of soda extensively on their farms.

Question 1. To what crops have you applied nitrate of soda?

2. In what manner?

3. In what quantity per acre?

4. The time of year when applied?

5. With what effect on the crop?

6. With what effect on the after or succeeding crop?

With the consent of these gentlemen I will transcribe the letters with which they favored me in reply to these inquiries.

Ockley Court, January 9th, 1840.

DEAR SIR,—I formerly used saltpetre as a top-dressing in the spring, but it became too dear; and seeing nitrate of soda always quoted in the newspaper with saltpetre, I thought it might answer my purpose as well, and have tried it now for six or seven years. The result of last year's experiment you will see below. We don't attempt to grow barley on this poor soil, but I know no reason why nitrate of soda should not answer for that as well as wheat and oats; and I cannot help thinking 1 cwt. per acre is sufficient, as most of the corn dressed with it was laid. You must not expect much benefit from it after one crop; but, if its price keeps down, and it always makes as good a return as it has hitherto done with me, I shall have the satisfaction of thinking I have done some service to the agricultural world.

I remain, yours sincerely,

WALTER CALVERT.

Experiments tried with Nitrate of Soda on Wheat and Oats on Ockley Court Farm, in 1839.

With nitrate $1\frac{1}{2}$ cwt. per acre—13 rods of land produced 30½ gallons, or 230lbs. of wheat, and 8 trusses and 32lbs. of straw; equal to 5 qrs., 5 bush., 6 gallons of wheat, and 106 trusses of straw per acre.

Without nitrate—13 rods of land produced 22 gallons, or 165lbs. of wheat, and 6 trusses and 1lb. of straw; equal to 4 qrs., 1 bush. of wheat, and 72 trusses of straw per acre.

The above experiments prove in favour of nitrate

of soda, 1 qr., 4 bush., 6 gallons of wheat, and 34 trusses of straw.

Oats, manured with $1\frac{1}{2}$ cwt. of nitrate, produced 2 qrs., 4 bush., and 29 trusses of straw per acre, more than oats without nitrate.

Nitrate of soda seems to act most on wheat, oats, rye-grass (particularly the Italian rye-grass), tares, and aftermath on meadows. The best time for sowing is April and May for wheat; but much depends on the season. It is very useful to throw on pastures, especially where cattle have neglected to feed. I have used it ever since 1833, more or less every year, but I saw the most decided advantage from it these two last seasons.

—
Castle Mill, January 18th, 1840.

SIR,—I beg to say that I have used nitrate of soda as a top-dressing on wheat, oats, and pasture, with the best effect. On the wheat crop not only is there a greater abundance of straw, but a great increase of corn. On my own land I grew last year more wheat by 10 bushels per acre than ever I grew before, and the straw much finer and stronger where I used the nitrate. I am acquainted with three very practical men, who tested it last year in the following manner:—by sowing a land throughout the field with the nitrate, and at harvest carefully reaping it by itself, and the adjoining land also, keeping it separate. On thrashing, in each of the three instances, the result has been nearly the same, although on very different land, the average being one-third more corn, and one-fifth more straw.

On oats it is of the greatest service, producing much more corn, and the straw growing very strong and large. On pastures and clovers the effect is wonderful: in ten days the greatest difference can be perceived, exceeding the effect of a good dressing with mixed mould and dung: and I should observe that the pasture is much better in quality, producing the finest herbage.

2ndly. I sow it by the hand, or broad-cast.

3rdly. From $1\frac{1}{2}$ to $1\frac{1}{2}$ cwt. per acre: a man sowing it by the same stride and swing as when sowing wheat, will put on about 140lbs. per acre; which, from my own experience, at well as from good information, I consider ample.

4thly. From the 10th of April to the middle of May; but this must of course depend much on the season. It works best when sown after or during a shower, as it then almost immediately dissolves. I think it of the greatest service to wheat in May, at the time it looks sickly, as is almost always the case; for where I have known it tried on yellow pieces, it will quite alter the appearance of the wheat in a week, producing a luxuriant green; in fact, it gives a fresh impulse, which no other dressing except saltpetre can do. On this, as well as every sort of crop, it ought not to be used in the middle of the day, unless in damp weather, otherwise the sun will scald, and in some instances kill the blade. I knew one person, last year, destroy a crop of peas by sowing it in hot and dry weather; as the cup or hollow part of the leaf held the nitrate, which as it gradually dissolved, scalded and killed the plant.

5thly. This question I cannot answer so fully as I could wish, nitrate of soda not having been tried long enough, very few having used it till last year; but I tried it the year before last on pasture, and had very much more grass last year where it had been used, which may be attributable in some degree to the great partiality the stock had in

feeding where the nitrate was sown, and where consequently the ground was more dressed. In the garden it is of much service, particularly on onions, which in dry seasons are very subject to a small white maggot, like the gentle, which soon destroys the plant. One of my workmen last summer had a bed which was fast dying off: he merely washed three empty bags in as many pails of water, and about six o'clock the following morning watered the onions, when the sun was bright, which killed every weed, and I suppose every grub, as a finer bed of that very useful hulf (onions) need not be seen than this was in a very short time. I saved some cauliflowers in my own garden nearly in the same way, by sprinkling half a handful round the stem, and watering them after. I have omitted mentioning that on the Swede crop, on which, in two instances I have known it used, it has had very excellent effects: the nitrate was sown two or three days after the seed. I remain, Sir, your obedient servant,

David Barclay, Esq.

GEO. DEWDNEY.

—
Piccard's Farm, Guildford, 2nd March, 1840.

SIR,—In reply to your questions relating to nitrate of soda as a manure, we (myself and son) have lately adopted the use of it, instead of saltpetre, as a top-dressing for our corn crops, and as a sufficient manuring for our turnips, on all soils but chalk. We have generally applied it to wheat early in March, about $1\frac{1}{2}$ cwt. per acre, sown broad-cast, and have found it increase the produce materially. In one experiment of last year, where an equal portion was reaped, thrashed, and measured separately, the increase where the nitrate of soda was sown was 12 bushels of wheat, and 31 trusses of straw per acre; but the quality of the corn somewhat inferior. We have also used it on barley with very similar effect; sown about the first week in May: and for turnips, we sow it on the fresh-ploughed land, drill the seed, and harrow it in together.

We have not used it long enough to ascertain if it will have the same effect on the after-crops which saltpetre has. The saltpetre we sowed, on alternate lands, on the barley in the spring of 1837, produced a superior crop; and, in the summer of 1838, two very superior crops of clover; and, in 1839, the effect was very visible in the crop of wheat.

We are, Sir, your very obedient servants,
David Barclay, Esq. DREWITT AND SON.

My own experiments were made upon wheat, sainfoin, clover-seeds, tares, meadow and pasture, and Swede turnips. The nitrate of soda was sown upon all but the last, in the month of March, 1839, in the proportion of 112lbs. to the acre, to which were added about 30lbs. of wood-ashes, the object of which was to enable the sower to spread the nitrate with more regularity.

The sainfoin, tares, and pasture, were much improved by the application of the nitrate; the effect on the meadow-grass was also very perceptible for some time; but, having been exposed to severe frosts in May, the injury it received was so great, that there was little to mow at hay harvest.

The application on clover seeds was very successful; on one field consisting of $6\frac{1}{2}$ acres, nitrate of soda was sown on 4 acres, and, on the remaining $2\frac{1}{2}$ acres, ground bones and ashes. The 4 acres produced at least 50 per cent. more clover

per acre than the part manured with bones. Immediately after the clover was cut, the field was ploughed up and sown with rape; the crop was very good on the $2\frac{1}{2}$ acres, but thin on the 4 acres which had been dressed with the nitrate, and it appeared as if the stimulating principle had exhausted itself in the first crop.

My experiments upon wheat and Swedish turnips were conducted with more exactness.

The wheat was sown after a clover ley, conformably to the usual practice in this county, on a loamy soil with a chalk subsoil, the land having received previously a dressing of farm-yard manure. The nitrate of soda was applied in the proportion of 112lbs. to the acre, up to the middle of the piece, which consisted altogether of about 25 acres a portion of the land was accurately measured, and an exact account taken of the results in head and tail, wheat and straw, which reduced to the proportion for one acre were as follows, viz.:—

Where no soda was sown, 3 quarters and 7 bushels the acre of wheat, and one load and 32 trusses of straw; the weight of the sack was 255lbs., and the tailing wheat weighed 72lbs.

Where the nitrate was sown, the produce of wheat was 4 quarters, 1 bushel, 4 gallons, and 2 quarts, and of straw 2 loads, and 8 trusses, being 2 bushels, 4 gallons, and 2 quarts more wheat, and 12 trusses more straw per acre; the weight of the sack was 248lbs., or 7lbs. less, and the tailing wheat 104lbs., or 32lbs. more than where no nitrate of soda was used.

In order to ascertain what difference of value existed, I directed the two samples to be taken on the same day to a neighbouring market, and sold at the best prices obtainable. The nitrate of soda wheat sold at 74s., the other at 78s. the quarter. The account will then stand thus:—

Wheat, per acre, on which Nitrate of Soda was sown.

	£.	s.	d.
Nitrate wheat, 33 bush., 4 gal., 2 qrt., at 74s. per quarter.....	15	10	5½
Straw, 2 loads, 8 trusses, at 36s. per load	4	0	0
	19	10	5½
Expense of nitrate of soda per acre	1	0	0
	£18	10	5½

Wheat, without nitrate, 31 bushels, at 78s. per qr.....	15	2	0
Straw, 1 load, 32 trusses, at 36s. per ld.	3	8	0
	£18	10	0

This result certainly both surprised and disappointed me, for the wheat appeared, while growing, much stronger, and when ripe a much heavier crop than that part of the field where no nitrate had been used. I suspected some mistakes in the calculations, but I am assured that no error has been committed; I must therefore conclude that however successful the application of soda has been to wheat on my neighbours' farms, some cause has operated to render the result less advantageous upon mine. It is observable that I used 56 lbs. the acre less of the nitrate of soda, but, nevertheless, part of my wheat was laid, and had I increased the quantity of nitrate, my bailiff is of opinion the whole would have been down. He accounts for the comparatively unsuccessful result by reminding me that there were

several blighted spots on the part dressed with the nitrate; the other part of the field was not free from blight, although certainly less affected by it.

The experiment on Swedish turnips was made in the following manner. Four lands were appropriated to the purpose:—

On the first, the seed was drilled with bones and ashes.

On the second, the nitrate was drilled in with the seed.

On the third, the seed and nitrate were both sown broad-cast.

On the fourth, the seed was drilled and the nitrate of soda sown broad-cast. In the preceding January 20 rods of each land were carefully measured—the Swedes drawn and weighed—

	cwt.
The first, with bones and ashes, produced ..	30½
The second, with nitrate drilled in	31
The third, seed and nitrate, both broad-cast ..	35
The fourth, seed drilled, and nitrate broad-cast ..	38

The quantity of nitrate used in each experiment was at the rate of 112 lbs. the acre, and on the first land the dressing was at the rate of 15 bushels of ground bones and 15 bushels of wood ashes per acre, which, at 2s. 3d. the bushel for the former, and 6d. the bushel for the ashes, would cost 41s. 3d. per acre, while the expence of the nitrate did not amount to 20s. the acre.

One experiment, however accurately conducted, it is obvious, cannot be conclusive; but so far as the foregoing may be relied on, it shows that, at less than one-half the cost of bones and ashes, nitrate of soda drilled in with the seed produced an equal weight of Swedes, and when sown broadcast the produce exceeded that weight by 20 to 25 per cent.

The experiments which have been made with this new manure require to be repeated, and their accuracy established, before any practical conclusions can with certainty be built upon them—variations in the soil and peculiarities of the season may also affect the results; but so far as I have had the opportunity of judging I am led to believe that, judiciously applied, it will prove a most valuable fertilizer, and considerably increase the crops of all sorts of grain, turnips, and all the grasses; that the most advantageous mode of application is by broad-cast, either during rain, very early in the morning, or in the evening after sunset; that the quantity per acre should be from 1 to 1½ hundred weight, according to circumstances; that it is better to sow it rather late than early in the spring, in order that the plant, the growth of which has been much stimulated, may not be exposed to severe frost. Its fertilizing principle, I think, is exhausted by the first crop, and it appears to me that pasture being better the second year is not inconsistent with this opinion, as the improvement is to be attributed to a secondary cause, viz., the greater quantity of dressing left on the land by the stock.

It is observable in Messrs. Drewitt's statement that the quality of their wheat grown upon the land dressed with nitrate of soda "was somewhat inferior," and that mine sold at 4s. the quarter less than the wheat grown on the adjoining lands—the increase in quantity afforded, however, a large compensation to my respectable neighbours. These facts have led me to doubt whether this manure be universally advantageous for wheat, and to think that it may not be advisable to use it on land subject to blight; and Messrs. Drewitt, it

will be observed, do not recommend it on chalk soils.

To conclude, although I cannot boast of having had equal success with those gentlemen whose letters I have transcribed, I consider that I have been amply repaid for the cost of the nitrate of soda used upon my farm during the past year, and I am now making further experiments on a larger scale.

I have the honour to be, sir,
Your obedient servant,
D. BARCLAY.

*Eastwick Park, near Leatherhead,
Surrey, April 24th, 1840.*

ON BREAKING TO HARNESS.

"When the improvement in our roads, especially the cross ones in the midland counties, is contrasted with the condition in which they were found ten or fifteen years ago, it is readily accounted for that the number of private carriages has materially increased.

"Likewise the abolition of duty on certain descriptions of vehicles enables many individuals possessing but limited incomes to avail themselves of the accommodation of a convenient and useful, although unassuming conveyance. Thus the wife or daughter of the industrious agriculturist is enabled to accompany the weekly productions of the dairy and the hen-roost to the accustomed market with much greater comfort and facility than formerly, when the single horse was called in requisition, and was the only means within these few years of performing the journey, for two ostensible reasons; the one on account of the badness of the by-roads, which entirely excluded the use of light-wheel carriages; the other, the cost of a gig or similar carriage, enhanced by the annual taxation, could not be supported by the limited profits derivable from the sale of the commodities. Since then, we have the establishment of railroads, which operate very materially in inducing private individuals to keep carriages for conveying them to the stations, as well as to and from such districts as are not approachable by steam communication. Seeing the increased demand for horses that are steady in harness, it becomes the more essential to consider the best method of rendering them so, not so much for the edification of the opulent possessor of the luxurious carriage, duly attended by a coachman, footman, and all such functionaries; but for the benefit of those of less aristocratic pretensions, who do not possess the same means of having their steeds brought to a perfect state of subjection, by which alone this mode of travelling can be rendered safe.

"It is a practice with many persons, especially in country places, but one which cannot be too strongly condemned, of putting horses which they desire to use in harness to work first of all in a team, or singly in a cart by way of breaking them in.

"With a high-couraged horse in good condition it is attended with considerable risk; a cart is too cumbersome and heavy for the purpose, and the draught required to set it in motion is far beyond that which a horse should be called upon to exert at a first attempt. The rude treatment accompanied by the noise of the whip and voice usually resorted to by waggoners, is ill-suited to the

temper of well-bred animals, and they become irritated by it as well as by the rattle of the chains and other parts of the ill fitting and cumbersome gearing in which they are hampered. Pulled about by other horses whose paces are very different, they frequently become, by all these contradictory efforts, when required to work by themselves, restive and unmanageable, and are particularly apt to glib or flinch from the collar when called upon single-handed to set a carriage in motion against a hill or other impediment which may require very extraordinary exertion. I believe there is scarcely any horse, unless his temper has been previously ruffled and injured, which may not be made perfectly steady and tractable in harness if properly treated.

"The first and most important consideration in breaking a horse to harness is to give him confidence and let him ascertain that you do not intend to inflict any pain upon him.

"He is a most sagacious animal, and it must be obvious to any thinking mind what an extraordinary sensation the adaptation of the harness and attachment to the carriage must produce when a horse is for the first time required to perform this new service; partly blindfolded also, the poor astounded brute is required to move a weight which he finds opposes the action of his shoulders, a point where he hitherto has not been accustomed to find the slightest restraint; he is naturally alarmed, and fears to move, because whichever way he inclines, he finds some new object of resistance. At this crisis the whip is too frequently called in requisition, when, not knowing what to do, the poor animal plunges; the inconsiderate driver chastises him for what he terms vice; the irritated, and by this time infuriated creature becomes violent; he persists in endeavouring to free himself from his trammels, which he either succeeds in breaking, or, if they be too strong to allow of that, he falls in some awkward position or other, which so far terminates the "first act;" and whether or not the performance ends here, depends upon the injury which the animal has sustained, and the obstinacy of the chief supporters of the *dramatis personæ*. By way of avoiding all these difficulties and risks, I have invariably adopted a plan which I found was exercised with perfect success by a very extensive horse dealer; and as it was practised with scarcely any instance of failure in his establishment, as also with a great number of horses which I have had similarly treated, I can with some confidence recommend the system: moreover I have met with several horses that have been given up as incorrigible when tried in harness by other persons, which have, by a quiet perseverance under the management I am about to describe, become perfectly tractable. In the first place let the harness be put on the horse in the stable, or, which is preferable, in the loose box, due attention being paid that every part is suitable and easy, without being tight to gall or chafe him; this is of great consequence. It is also necessary to observe that it be strong, so that it cannot be broken; whereas in many instances old rotten harness is brought into action on these occasions. The harness being carefully adjusted, the horse should be allowed to stand for some time in the stable thus caparisoned, in order that he may be reconciled to the feel of it, and discover that he will not be hurt by it. Let him then be led out and walked quietly about some unfrequented road, the traces and such parts being secured from falling or flapping about

his sides. In this manner he will soon become accustomed to the feel of his trappings, when a cord ten or twelve feet long is to be attached to the ends of the traces, and taken in the hand of an assistant, who by this means will be out of the reach of his heels should the horse be inclined to kick: another attendant will then lead the horse forward—it appears almost unnecessary to offer a caution against suffering the traces at this crisis to flap against the animal's hocks. By degrees a little resistance must be given to the shoulders, by pulling slightly against the traces as the horse is progressing forwards, with this observance, that if the pressure or artificial draught create any alarm, the operation must be momentarily abandoned; that is, the draught must be relaxed, but resorted to again as soon as he becomes tranquil. When sufficiently accustomed to this mode of proceeding, the driving reins are to be run through the terrets and buckled to the cheek of the bit, in order to accustom the horse to this mode of guidance; one, which, it must be remembered, is very different from that of the hand when the rider is seated on the saddle. An additional person is required to manage these reins, as the assistant will still be required to attend to the horse's head, although he may for the most part leave the guidance to the person holding the reins. As the animal yields to this treatment, and evinces docility by working or leaning against his collar, additional resistance must be produced by the person holding the traces; and in due time the one having the care of the reins should incline the horse from one side of the road to the other, and the traces be occasionally pulled against his thighs, but so cautiously as not to induce him to kick. I have known some persons attach the traces to a log of wood, but it is a dangerous and unnecessary practice, as I have known instances of horses so treated becoming alarmed and starting off with their unwieldy and unwelcome companion; whereas, by the management which I have described, there is no danger whatever, either to man or horse. I should recommend a repetition of this practice for two or three days, if the horse shows much timidity or refractoriness: above all, most strenuously let me oppose every thing like abuse; every thing may be accomplished by mild treatment and patience: nothing good can be expected from hurry and violence. When sufficiently quiet under this course of discipline let the horse be put to a light gig, single or double break; if in the latter, with a quiet horse by his side. There are many persons who consider the double break as the only advisable means of tuition; but of this I am rather sceptical, and would, after the preparation which I have suggested, prefer single harness; in which case it must be observed, that the security of a strong kicking-strap is indispensable, and an assistant to run on each side until the animal goes with some degree of quietness and tractability. As a matter of course the bearing-rein is not required; neither am I disposed to advocate its use for horses in private carriages, however essential it may be on the wheelers of a stage-coach: a halter will, however, be required under the bridle for the use of the attendant in case of need. Much care and quietness must be observed in putting the horse to the carriage at first, whether it be a single or double break, and the vehicle should be placed in such a situation that it may be started without difficulty; but if the animal has not acquired sufficient confidence to take it off when he finds

the pressure of the collar upon his shoulders, let him stand a short time; above all, keep the whip still: more horses have been spoiled by its improper use and want of patience at this juncture, than by any thing else. Let your attendants caress and coax him; his confidence will soon become established: and after he is thoroughly satisfied that you do not intend him any harm or abuse, there is but little doubt of his compliance.

"The driving-reins should at first be buckled to the cheeks of the bit only; greater severity from the use of the curb might be very injurious. When the horse is induced to put the vehicle in motion, the walk is the only pace that should be required from him: it is time enough to induce him to accelerate his speed when he evinces docility and good temper. The only advantage which I could ever discover in the use of a double break is that of encouraging a shy horse to start the carriage, which office is, in point of fact, performed by his partner: but there is this objection—if the young one becomes alarmed, and begins to plunge, there is danger in his getting across the pole, or otherwise injuring himself, as the other horse, and consequently the carriage, will not yield with him: he thus meets with more resistance than in a single break, which constraint very frequently renders a high-couraged animal desperate; so that the advantages which a double break affords in some points, are more than counterbalanced by these objections.

"In single harness the points of the shafts, and in double harness the pole, coming in contact with the shoulders of the horse when turning, are objects which frequently create alarm, and must at first be guarded against by having an assistant at hand to push the shaft or pole round; but a little patience especially, aided by occasionally inclining the horse from one side of the road to the other, without actually coming round, will soon overcome this difficulty.

"A few days' practice in the way I have described, will render most horses tractable enough to put to general work, unless they are intended for the use of ladies, in which case, as a matter of course, they will require more time. That the plan is practical and effective, I can assert from experience, in a great variety of instances, and especially in one that occurred a few years since. Being at Brighton, I met with a friend who wished to dispose of a horse and a stanhope, which were offered to me upon tempting terms. I consequently closed the bargain. My friend was aware that I was about to depart in the course of a few days for London, and inquired how I meant to get the gig there. 'Put the horse to, and drive it up,' I replied. 'Oh, but he won't go in harness,' he exclaimed: 'a gentleman tried him before I became possessed of him, and he smashed the carriage; and half the breakers in Brighton have had him in hand!' Now although I bought the horse and gig at one deal, I did not do so with the impression that my friend had ever used the horse in harness, and certainly had never made any inquiry as to his steadiness, neither did I much care about it. However, on learning the qualifications of my new acquaintance, I was not long before I had the harness on him, and had him led about as I have described, and ultimately put him into the shafts of the gig, where he stood as fast as St. Paul's, with every demonstration that if I had touched him with the whip, or used any other means to have urged him forward, I should soon have had him on his back; but I sat very patiently for

nearly an hour before he shewed any disposition to 'move on,' as the policemen say; but having selected a part of the town where the interference of those functionaries was not to be apprehended, there was not much danger from their mandates, which, on this occasion, would have been beyond compliance, until it had been my animal's pleasure. However, he presently turned his head first on one side, then on the other, as though desirous of looking about him and ascertaining if he were about to sustain abuse, and not finding any to be inflicted, he presently walked off as quietly as possible. I treated him in a similar way for two successive days, when I drove him to London, dividing his labours by a night's rest at Reigate, and he has ever since, at least so long as he was in my possession, gone as tractably as could be desired. If more attention were paid to the moulting and breaking of colts in the first instance than what is usually bestowed by farmers and breeders, it would be found greatly to their advantage. Actuated by a false notion of economy, valuable colts are too frequently consigned to the care of some ruffian or mountebank pretender, who undertakes to reduce the animal to subjection for about half the sum at which he can earn bread and cheese, and resigns his charge as thoroughly tractable, when in point of fact the office has been performed at the same ratio as the contract, and the animal is given up in a state likely to become vicious and comparatively useless.—*Sporting Magazine*.

OFFICE FOR THE ANALYSIS OF SOILS.

It is the opinion of those who have made the greatest advances in the science of agriculture, that a minute analysis of soil would tend to throw much light on the nature of the food of plants, and there is no question of that opinion being well founded.

Now, although the analysis of soils is represented by those who understand it as being a very simple operation, to those who do not it is the reverse; and I rather think that few farmers will attempt it. By following the given directions a man may perhaps succeed in separating the various earths, but will he in all cases be able to identify them? I am not by any means satisfied that the science of analyzing soils is yet perfected; indeed, I am inclined to doubt whether the subtlest and most essential parts—the very spirit, if I may so term it—do not escape the process. Whether it be so or not is not now my purpose to enquire, all I wish to say at present is that I think few farmers could conduct an analysis to their satisfaction: it is the man of science only who can really be depended upon.

It is not, I believe, generally known that an analysis may be obtained in London, for a fee of about 20s., at the Museum of Economic Geology—which is attached to her Majesty's Board of Woods and Forests, Craig's Court, Charing Cross—from Mr. Richard Phillips, one of the first analytical chemists in Europe: thus a pound of soil might be forwarded from any part of the country, and the particulars of the analysis would be furnished with the utmost fidelity.

Such being the case, and the importance of analysis being generally allowed, is it not imperative on all societies established for the purpose of promoting agriculture, to see that the soil in their respective localities be scientifically investigated?
—*British Farmer's Magazine*. JNO. BRADSTON,
Sept. 16, 1840.

INSTITUTE OF AGRICULTURE AND FORESTRY AT HOHENHEIM, NEAR STUTTGARD.

(FROM BACHE'S REPORT ON EDUCATION IN EUROPE.)

This is the most complete agricultural school in Europe, and extends its usefulness not only throughout, but beyond, Wurtemberg. It was established in 1817, by the Agricultural Society of Wurtemberg under the patronage of the king, who devoted a royal seat, with extensive building, to the purpose of the institution. The farm includes nearly one hundred acres exclusively appropriated to the support of the school, or the practical instruction of the pupils. In 1820 the school of forestry was united with this, and the pupils now follow, in part, the same courses.

The entire institution is divided in two departments, one of which is intended to give a higher general and practical education than the other. In the higher, the object is less the acquisition of manual dexterity in the operations of agriculture, than the knowledge required to superintend them; while in the lower, the practice is the principal end. The latter department ranks with the rural school of Switzerland and the agricultural school of Templemoyle, in Ireland. In the higher school, all the pupils are expected to pay for their education. In the lower, natives of Wurtemberg are admitted gratis, if their circumstances require it. Foreigners may be admitted to either; their payment being, however, on a much higher scale than those of natives.*

The direction of the establishment is delegated by the agricultural society to a director and treasurer, the former of whom has the general superintendence of the institution, while the latter is responsible for its financial state to the royal exchequer. The director is also an instructor. There are, besides, four extraordinary professors, besides an overseer and steward, for the management of the farm and domestic economy. The treasurer has a book-keeper and an assistant in this department.

Pupils are admitted at seventeen years of age, and are expected to possess elementary attainments necessary to the prosecution of the courses of the school. Between 1829 and 1836, one hundred and eighty natives and one hundred and eighty-two foreigners have been educated in agriculture, and one hundred and forty-seven natives and one hundred and seventy-seven foreigners in forestry, making a total of five hundred and thirty-nine in the institution. The number of pupils in the higher school in 1836 was seventy-two. That in the lower school is limited to twenty-seven.

The pupils of the *lower school*, in general, come under obligations to remain three years at the institution, in consideration of which their payments for instruction are diminished in part in the second year, and cease in the third. They are engaged in the operations of the farm, the garden, and other parts of the establishment, which will be hereafter

* For the yearly courses at the higher school natives pay forty dollars, and foreigners one hundred and twenty dollars. For instruction in forestry only, a native pays twenty-four dollars, and a stranger seventy-two dollars. For the three years' instruction in the lower school, natives pay forty dollars.

enumerated, under the direction of the workmen, and under the superintendence of the steward, their time being so distributed that they may acquire practice in the various operations of farming. They are also required to attend certain of the lectures given to the higher classes, and receive instruction at times when they are not engaged in agricultural labour. They receive regular wages for work done, from which they are expected to pay for their maintenance and clothing. Premiums are given to those who display great skill and industry. While in the houses, the younger pupils are under the charge of the elder ones, and all are under the general superintendence of the overseer. The same superintendence exists in the refectories and dormitories. It subserves the double purpose of economy, and of training the elder pupils in the management of men, which is one object of their education. The institution undertakes to find places for those pupils who have given satisfaction while in the school, on their completing its course.

The agricultural courses of the *higher school* may be accomplished in one year, if the preliminary studies of the pupil have been directed with a view to his entering, but in general it requires two years. The same period of two years is required for that of forestry. Each scholastic year has two sessions, the one from the first of November to Palm-Sunday, and the other from two weeks after Palm-Sunday to the first of October. The intermediate periods are vacations.

The branches of special theoretical instruction are as follows :—

First, *Agriculture*. General principles of farming and horticulture, including the culture of the vine. The breeding of cattle. Growing of wool. Raising of horses. Rearing of silk-worms. Arrangement and direction of farms. Estimation of the value of farms. Book-keeping.

Second, *Forestry*. Encyclopedia of forestry. Botany of forests. Culture and superintendence of forests. Guard of forests. Hunting. Taxation. Uses of forests. Technology. Laws and regulations, accounts, and technical correspondence relating to forests.

Third, *Accessory Branches*. Veterinary art, agricultural technology, especially the manufacture of beet sugar, brewing, vinegar making, and distilling. The construction of roads and hydraulic works.

Besides these special branches, the following general courses are pursued :—

First, *The Natural Sciences*. Geology. Physiology of plants. Botany, as applied to agriculture and forestry. Natural history of animals beneficial or noxious to plants or trees. General chemistry, and its applications to agriculture. Physiology and meteorology.

Second, *Mathematics*. Theoretical and practical. Geometry. Elements of trigonometry. Arithmetic. Elements of algebra.

The institution possesses the most ample means for the illustration of those courses in its farm and collections. The farm is divided into arable land, about five hundred and one acres; meadow land, two hundred and forty-two acres; fields set apart for experiments, thirty-three acres; woodland, thirteen acres; nursery, sixty-seven acres; plantation of hops, two acres; botanical garden, fourteen acres; ground for exercising the pupils in ploughing, two acres; garden, one acre; the remainder, eighty-five acres. Total, nine hundred and sixty acres. The arable

land is cultivated according to five different rotations of crops, that the pupils may have specimens of the varieties of system. The botanical garden, nursery, and experimental farm, are prominent parts of the establishment. There is a large stock of cattle of different kinds, foreign and domestic, and of sheep, that the pupils may acquire practical knowledge of the relative advantages of different breeds, the mode of taking care of the stock generally, and of rearing them for different purposes. Horses are kept for a riding-school, as well as for the purposes of the farm. The institution has a large collection of agricultural implements in use in Wurtemberg, and of models of the varieties of foreign and new implements. These are made in a workshop attached to the school, and afford practice in the manufacture to the pupils, as well as instruction by their use or inspection, with the explanations of the professors. The sale of these implements and models also contributes to the support of the establishment. There are two collections of seeds and grain, one as specimens for illustrating the lectures, the other in quantities for sale. The pupils learn the mode of preserving them, and useful seeds are distributed through the country. There is a collection of soils of all kinds for the lectures on terraculture and the analysis of soils, with specimens of the means of amelioration used in different cases. The collections of natural history, though small, are interesting, from the precise adaptation of the specimens to the objects of the school. They consist of birds, beasts, and insects, and of plants, woods, and rocks. The woods are arranged in the form of a library, the separate specimens having the forms of books given to them, and being covered in part with the bark. The same is inscribed upon the back. Cross and longitudinal sections are usually found in the same book, forming the covers. Between the covers is a box containing the seed and flowers of the tree, the parasites, &c., and a description. There is a small collection of physical apparatus, a library, and a laboratory. The following farming and technological establishments are connected with the school, and worked by the pupils, under the charge of the teachers; viz., a cider-press and appurtenances, a beet sugar manufactory, a brewery, a distillery, and a vinegar manufactory. Though I saw better individual collections than these, the whole suit stands unrivalled, as far as my examination extended.

Examinations take place every year, which are obligatory upon those forestry pupils who intend to enter the service of the government: strangers are not required to be examined. Persons wishing to learn the details of the institution, may be received as visitors for a period not exceeding a month, living with the pupils.

Each pupil in the higher school has his own sleeping room; or, at most, two rooms together. They take their dinner and supper in a common hall, and order what they please for breakfast from the steward's assistant.

This institution has supported itself for several years, which is readily to be understood from the scale of its farming operations. The success of the farm does not depend exclusively upon the productive manual labour of the pupils. It is analogous to the support of a family on a large estate, the members of the family aiding in the work, and contributing also in money to their own support, but the working of the farm not depending entirely upon their manual exertions.

SPADE HUSBANDRY.

"With certain kinds of soil, and in certain situations and circumstances, the spade may be employed as an instrument of tillage in preference to the plough. In all cases of heavy, wet, or stony land, or where there are extensive fields to be cultivated on an enlarged principle, the plough is absolutely necessary. In our varied climate, the process of tillage must, in most cases, be expeditious, and, therefore, horse labour with the plough, by which a large amount of work may be done rapidly, is in a great measure indispensable. As already mentioned, the turning over of an acre per day is considered fair work for a pair of horses with the plough, but to delve the same quantity of land with the spade would occupy a man from fifteen to twenty days, according to ordinary depths. Twenty men for one day would no doubt accomplish the same quantity of work; but it may be asked, where are human labourers to be found in sufficient abundance, when wanted, to delve the greater part of the fields throughout the country? and granting they could be found, how are they to be occupied in those periods of the year when no delving is required?"

"Laying aside the visionary and impracticable scheme of cultivating the land entirely by the spade, we find that this instrument is chiefly available upon small farms—cottage farms, as they are termed—under fifty acres in extent, which could barely afford constant labour for a pair of horses and a ploughman, and as an aid to ordinary tillage, when the soil is deep and light, and a redundancy of manual labour is at hand. If the land be a fine deep sandy loam, it will prove advantageous occasionally to trench it with the spade, so as to bury the exhausted top soil, and bring to the surface that portion of the lower stratum which has been for years saturated with the rich properties of the manure. This practice prevails on the small farms and the light soils of Flanders, where manual labour is cheaper than in Britain, and where all green crops are carefully devoted to the rearing of cows and black cattle. As a matter of economy, therefore, spade husbandry is preferable to that of the plough and harrow among the Belgian farmers.

"It is undeniable that delving the land spadeful by spadeful pulverizes it more effectually than ploughing and harrowing; but this advantage, as respects large undertakings, is counteracted by the tediousness and expensiveness of the process, and hence, as we have said, it is unavailing except in particular cases. Tillage with the spade forms a kind of gardening, in which the chief capital expended is manual labour, and is therefore extremely suitable to those who possess a large share of this capital, and are without any means of employing it more profitably otherwise. In all cases in which it has been applied to the improvement of patches of land by a settled population of cottagers upon the allotment principle, it has been found particularly advantageous both for landlord and tenant—so much so, that by a well-directed system of allotment to poor but industrious families, very nearly the whole waste lands (where not too elevated) in the united kingdom, might be cheaply and effectually improved.

"It is calculated that cultivation by the spade will, in general, yield a half or third more produce in grain than by the plough, provided the soil be appropriate to this mode of tillage; consequently, the question for solution by the farmer is, whether

this additional produce will compensate the additional expense which is incurred. As we are unable, from personal experience, to assist the farmer in solving this somewhat difficult matter of inquiry, we beg to offer the result of experiments by others. In regard to difference of produce betwixt spade and plough husbandry, the first evidence we have to bring forward is that of Sir John Sinclair, who mentions the following experiment as having taken place in the neighbourhood of Hamilton, in Lanarkshire:—"A field was taken which had been cropped with beans the preceding year, and the previous year with oats. Two ridges were dug and two ploughed alternately, and the whole was sown on the same day. A part, both of the ploughed and dug, was drilled with the garden hoe. The whole was reaped the same day, and being thrashed out, the result was, that the dug land, sown broadcast, was to the ploughed, sown broadcast, as fifty-five bushels to forty-two; while the dug and drilled was as twenty and a quarter bushels to twelve and a quarter upon the ploughed and drilled. The additional grain produced was not the only beneficial result gained by digging, for in this instance there was also a great deal more straw, and the land was much more free of weeds, and more easily cultivated next year.' We are not informed what was the difference of expense between the two modes.

The following account of the produce upon a cottage farm in Yorkshire, containing three statute acres, and divided into seven fields or patches, has been drawn up by its proprietor, Sir Henry Vavasour, and published in the *Middlesex Report*:—

PRODUCE.	VALUE.	A.	R.	I.
" 240 bushels of potatoes..	£24 0 0	0	2	0
60 ditto carrots.....	6 0 0	0	1	0
5 quarters of oats, at 44s. per quarter.	11 0 0	0	3	20
4 loads of clover, part in hay, part cut green.	12 0 0	1	0	10
Turnips	1 0 0	0	0	20
Garden stuff for the family.	0 0 0	0	0	30
	£54 0 0	3	0	0
DEDUCT.				
Rent, including house..	£9 0 0			
Seeds, &c.....	3 0 0			
Value of labour	10 10 0			
	£22 10 0			

Profit 31l. 10s. at market, exclusive of butter, if sold.

"This account, interesting as it is, still fails in giving us a just idea of the value or quantity of the entire labour bestowed on the land. Whether the charge of 10l. 10s. applies to a man's whole time, or only a portion of it, or to the labour of a whole family, we are not informed. In none of the statements of this nature which have fallen under our notice, have we seen any comparison instituted between the value of the manual labour on the farm and its value if directed to other departments of industry. The above-noted profit of 31l. 10s. per annum, exclusive of garden stuff, making altogether probably 13s. per week, would form a good revenue to the family of a pauper, but falls short of what a shoemaker, carpenter, or other skilled labourer in many places realizes

by his industry. Hence, to divert labour from such profitable pursuits, in order to devote it to garden farming, would be so far an unwise device in our social polity.

"The most correct account which we possess of the comparative value of spade husbandry in professional farming, is that given by Mr. Archibald Scott, of Southfield, near Haddington, East Lothian, in an essay which he wrote upon the subject, and for which he obtained a prize of 100*l*. The following extract from it is well worth the consideration of the practical farmer:—

"I am quite convinced there is but one way of employing the surplus population of England and Ireland, and that is, by a judicious introduction of spade husbandry; and I am also convinced that a system of management can be pointed out whereby every labourer in Great Britain might be employed, with profit to the employer and advantage to the country.

"I should think it will hardly be denied by any one at all versant in agricultural operations, that work done by the spade is superior to work done by the plough, and that the only drawback is the great additional expense. Now, if I can show that, at a particular period of the rotation, spade husbandry is not only superior, but less expensive, I shall have got over this difficulty.

"To show that I am not a mere theorist, but a practical man, I may mention that I rent a farm from the Earl of Wemyss, in East Lothian, consisting of 530 Scotch acres; and that I have cultivated land to a considerable extent with the spade for the last three years, and that the result has exceeded my most sanguine expectations. As facts are stubborn things, I shall lay before you my system, crops, expenses, and profits. In 1831, I determined to ascertain the difference of the expense and produce between trenching land with the spade, and summer fallowing with the plough in the usual way. I therefore trenched thirteen acres of my summer fallow-break in the months of June and July; I found the soil about fourteen inches deep, and I turned it completely over, thereby putting up a clean and fresh soil in the room of the foul and exhausted mould, which I was careful to put at the bottom of the trench. This operation I found cost about 4*l*. 10*s*. per Scotch acre, paying my labourers 1*s*. 6*d*. per day: the rest of the field, which consisted of nine acres, I wrought with the plough in the usual way, giving it six furrows, with the suitable harrowing. I manured the field in August; the trenched got eight cart loads per acre, the ploughed land sixteen; the field was sown in the middle of September. The whole turned out a bulky crop as to straw, particularly the trenched portion, which was very much lodged. On thrashing them out, I found them to stand as under:—

"By trenched wheat per acre, 52 bushels at 6 <i>s</i> . 9 <i>d</i> .		£17 11 0
To two years' rent at 2 <i>l</i> . 10 <i>s</i> . per acre.	£5 0 0	
Expense of trenching.	4 10 0	
Seed, three bushels at 6 <i>s</i> . 9 <i>d</i> .	1 0 3	
Eight cart loads of manure at 4 <i>s</i> .	1 12 0	
Expense of cutting, thrashing, and marketing.	1 10 0	
Profit	3 18 9	
	£17 11 0	

"By ploughed wheat per acre, 42 bushels at 6 <i>s</i> . 9 <i>d</i> .		£14 3 6
To two years' rent at 2 <i>l</i> . 10 <i>s</i> . per acre.	£5 0 0	
Six furrows and harrowing, at 10 <i>s</i> .	3 0 0	
Seed, three bushels at 6 <i>s</i> . 9 <i>d</i> .	1 0 3	
Sixteen cart loads of manure at 4 <i>s</i> .	3 4 0	
Expense of cutting, thrashing, and marketing.	1 10 0	
Profit.	0 9 3	
	£14 3 6	

I now saw, that though it might be difficult to trench over my fallow-break during the summer months, it was by no means making the most of the system, as the operation was not only more expensive, owing to the land being hard and dry during the summer, but that it was a useless waste of time to take a whole year to perform an operation that could be as well done in a few weeks, provided labourers could be had; and as, in all agricultural operations, losing time is losing money, as the rent must be paid whether the land is carrying a crop or not, so that in taking one year to fallow the land, and another to grow the crop, two years' rent must be charged against the crop, or at least there must be a rent charged against the rotation of crops for the year the land was fallow. As I felt satisfied, that by trenching with the spade, the land would derive all the advantages of a summer fallowing, and avoid all the disadvantages attending it, I determined on trenching thirty-four acres of my fallow-break immediately on the crop being removed from the ground, and had it sown with wheat by the middle of November, 1832. I may here remark, that I did not apply any manure, as I thought the former crop was injured by being too bulky. As it is now thrashed out and disposed of, the crop, per acre, stands as follows:—

"By average of 34 bushels per acre at 7 <i>s</i> .		£15 8 0
To rent of land per acre.	£2 10 0	
Expense of trenching.	4 0 0	
Seed.	1 1 0	
Cutting, thrashing and marketing.	1 10 0	
Profit	6 7 0	
	£15 8 0	

"The advantages of trenching over summer-fallow are, in my opinion, very decided, as it is not only cheaper, but, as far as I can yet judge, much more effectual. I am so satisfied of this, not only from the experiments above noticed, but from the apparent condition of the land after it has carried the crop, that I have this autumn cultivated about a hundred acres with the spade, and the crops are at present very promising. When I first commenced, I was laughed at by my neighbours, but now when they see me persevering in what they considered a very chimerical project, they are suspending their judgment, and several of them have made considerable experiments this year. I should think there are at least 250 acres under crop cultivated in this way this season in East Lothian; in 1831, the year I commenced, there was not a single acre. I have therefore the satisfaction of knowing that I have been the means of causing 1000*l*. to be spent this year amongst the labouring classes in

my immediate neighbourhood, and I feel confident that should the season turn out favourable for the wheat crop, and fair prices be obtained, their employers will be handsomely remunerated in their outlay. I do not say that this system will succeed in every description of soil, as it must necessarily be of some depth to admit of the operation; but there are few districts where such soil will not be found in sufficient abundance to give ample employment to the surplus population of the neighbourhood."

"This is strong testimony in favour of spade husbandry, but it would be premature to decide in its favour, and we leave it to the consideration of those who take an interest in the subject."

CHANGES IN THE GROWTH AND SUPPLIES OF SHEEP'S WOOL.

(FROM THE POLYTECHNIC JOURNAL.)

In the long list of commercial articles ministering to the wants and luxuries of man, no one has undergone such remarkable changes as sheep's wool—no animal of the useful class has been subjected to so many experiments as the one to which we are indebted for our winter's clothing. The subject is therefore curious, and deserves a brief inquiry.

The estimation in which sheep were held, during the patriarchal ages, is known to those who are familiar with the pages of Holy Writ. That the Iberian peninsula, in the earliest times, was famed for the breeds of that valuable animal is equally attested in history. Strabo says that, in his days, a woollen manufacture of great beauty was established in Turdetania (Andalusia), more extensive than that of the Coraxi from whom rams had been obtained at the expence of a talent, or 100*l.* each.

The Coraxi were a people belonging to Colchis, a country in Asia, where Jason bore away the golden fleece, and antiquarians contend that it was thence and from the valleys of the Taurus and Caucasus that the European nations originally procured their best sheep, an opinion which Strabo seems to confirm in the passage above quoted. The oldest chroniclers of Spain declare that, when Osiris visited their country, he found the inhabitants in the possession of large flocks and herds.

Under the Carthaginians and Romans the breeding of sheep continued to be a favourite occupation of the Spaniards—one congenial to their national character; and their wools, more particularly those of Bætica and Cantabria, bore a high price at Rome, where they were converted into articles of fine texture. During the dominion of the Goths this branch of rural industry equally flourished, but declined after the conquest of the Moors, and was nearly destroyed through the wars which preceded their expulsion.

England then took the lead in the breeding of sheep, and in the days of the Dukes of Burgundy we sold raw wools to the Flemings, and bought them back in a manufactured state. Through the arrival of the Walloons among us, and the enterprise of our merchants, we eventually learnt the art of spinning and weaving wool; when in our turn, we supplied the Flemings with woollen cloths, and they, on the loss of their old market, turned their attention to the making of lace and linen.

In 1275, during the reign of Edward I., parliament voted an imposition of half a mark on each sack of wool exported; but this and other grants not sufficing to meet the king's wants, he compelled the merchants to pay him as much as 40*s.* on each sack, equivalent to nearly one-third of the value of the article; and during a pressure on his treasury seized all the wool he could find on hand and sold it for his own benefit.

Under Edward III. parliament offered a grant of 30,000 sacks, but the conditions annexed to it were too onerous to be accepted. This occurred towards the year 1339, and the bare fact of the offer warrants the inference that the quantity of fleeces then grown in England was considerable, as well as that they were in request.

In return for concessions made to the barons and knights, the same monarch obtained, for a limited period, the unusual grant of every ninth sheaf, lamb, and fleece; and to meet his wishes, the old duty of 40*s.* on each sack of wool exported was renewed. In 1340, the quantity shipped in England exceeded 30,000 sacks, producing a sum equal to half a million of our present money.

Edward III. encouraged the woollen manufactures by inviting over foreign weavers, and also directed that English cloths should be exclusively worn. So marked was his patronage, that he has always been considered as the founder of this branch of national industry. There is no record, however, to show the number of sheep pastured in England during that monarch's reign; but the sack of wool, weighing 26 stone, or 350*lbs.*, was then worth 14*l.* or 15*l.*, or about 8*d.* per lb.

This return exhibits an immense advance in the price of this article, as Madox, in his '*Baronia Anglica*,' chap. xiv., tells us that in the 30th of Henry II., corresponding to the year 1184, 500 sheep sold for 22*l.* 10*s.*, or about 10*d.* per head; and 33 bulls and two cows for 8*l.* 2*s.*, money of that age. As a further illustration of the advance in the price of wool, in the course of little more than a century and a half, it may be added, that in the year 1354, our total exports amounted to 294,184*l.* and our imports only to 38,990*l.*, an amazing difference, chiefly arising out of the large exportation of raw wools. Strange to say, the shipment of the same article, in a manufactured state, was in those days prohibited.

At the period alluded to England had unquestionably made greater progress in the growth of wool than any other nation, so spiritedly was public attention directed to this object. It became the germ of national prosperity, but through an incident, which our own historians seemingly overlook, English growers were destined to find a rival in a quarter least expected.

Henry III. of Castile, espoused Catherine, daughter of John of Gaunt, who, it will be remembered, was the third son of Edward III., deservedly considered as a national benefactor. The nuptials were celebrated with great pomp, and after the lady's arrival at the Castilian court, through her influence in England, she obtained flocks of our best breeds of sheep, which were carefully conveyed to Spain. The soil and climate being peculiarly congenial, they there prospered and soon spread to the provinces already freed from the Moors.

To this curious fact Shenstone alludes in his eighteenth elegy, rather in the tone of reproach, when speaking of the decline in our own woollen manufactures. These are his words:—

"From the fair natives of this peerless hill,
Thou gav'st the sheep that browse Iberian
plains,
Their plaintive cries the faithless region fill,
Their fleecce adorns an haughty foe's domains."

Possibly the poet learnt the circumstance of this shipment of sheep to Spain from traditional report, perhaps in some part of the country where the flocks were procured. Certain it is, that about this period the Spaniards became possessed of some of the choicest breeds, which, in the course of time, enabled them to establish a monopoly of fine wools, to our detriment. This superiority they endeavoured to sustain by the severest restrictions on the exportation of sheep, and so successful were they that, during the greater part of the last century, the woollen manufactures of both England and France remained dependent on Spanish growers for the finer qualities of the raw material.

So sensible indeed were the Spaniards of this advantage that they devoted more attention to the improvement of their flocks, than the cultivation of either corn or wine. The occupation became a favourite one with the peasant, while the prospective profits were so tempting that the wealthiest land proprietors, as well as the heads of some of the most powerful convents, invested large capitals in flocks, and formed themselves into a corporation; but they never succeeded in carrying the number of their sheep beyond ten millions.

In Spain the shepherd was always viewed as a person of consequence, and hence he often takes a leading part in the national legends. In the one regarding the memorable battle of Las Navas de Tolosa, to this day annually commemorated in the principal churches, St. Isidore was made to assume the garb of a shepherd, when, as the story goes, he conducted Alonso VIII. by a secret mountain path, to the formidable position held by the Moors, a service to which the Christians were mainly indebted for an important victory.

Spanish shepherds are a class superior to those of other countries, many having received a good education, and it is not uncommon to meet one with a 'Virgil' or 'Horace' in his hand. Their position is indeed peculiarly favourable to study. Poets and excellent *improvisatori* are occasionally found among them; nor is it unusual to hear a shepherd explaining the movements of the heavenly bodies. Some have rendered great public services. Hardy and abstemious, they traverse the most secluded regions, and hence they know the interior of their country better than any other class of peasants. While watching his fire on the mountains of La Mancha, a shepherd discovered the quicksilver mines of Almaden, by observing the mineral fluid disengage itself from the stones which confined the glowing embers. It is also believed that the efficacy of mercury, taken internally, was originally ascertained by being administered to sheep for the purpose of removing the worms.

To such a pitch did the Castilian monarchs carry their patronage in favour of the growth of wool, that every other branch of rural economy was made subservient to it. Privileges the most extravagant and oppressive, were granted to insure its advancement. A special council was also established for its protection, composed of the principal flock owners, and invested with extensive powers. They, in fact, constituted a tribunal almost as arbitrary as the Inquisition.

Among other privileges, on the approach of winter the flock masters were allowed to conduct their sheep from the mountains of Castile into the southern provinces in search of a milder climate and better pasturage, where, on the payment of a trifling toll, they could enter the lands of any farmer, and when the pasturage was exhausted in one place they proceeded to another. In this manner were the rights of the landed proprietors invaded with impunity. Perpetual and ruinous lawsuits followed, the interminable length of which, coupled with the partiality of the judges, broke the spirit of the husbandmen and drove many families to despair. For more than two hundred years was the province of Estramadura, owing to its position the one most exposed to these annual depredations, involved in lawsuits with the council of La Mesta, on account of this unjust and impolitic privilege.

Sir John Carr, who travelled through the southern provinces of Spain in the year 1809, speaks of the iniquitous system of the Mesta laws in the following manner:—"Still may be seen the baneful effects of the blind impolicy of the Spaniards in favour of their sheep. England and other countries," adds he, "have been formerly invested with wolves and other ravenous beasts. Spain may be said to be devoured by the meekest of all animals—by sheep, which are permitted to riot in and impoverish a region which, on account of its richness and fertility (alluding to Andalusia) the ancients, in the warmth of imagination, determined to have been the garden of the Hesperides and the site of the Elysian fields."

For the sake of the revenue derived from the exportation of wool it has been supposed that the Spanish government submitted to this sacrifice, which in some years actually threatened a famine, for the farmer would not sow his lands without the prospect of reaping their produce. This branch of the revenue, however, never exceeded 700,000*l.* sterling, a sum too paltry, one would think, to influence the policy of any cabinet. In its dotage, and in the blindness of corruption, the acts of the Madrid government were directed only by court favour, and hence the substantial interests of the nation were neglected.

Anxious to possess the best wools, and in the largest possible quantity, the Spaniards carried their mania still further. They devised a scheme to render themselves independent of the supplies of foreign woollens, furnished by those nations which bought from them the raw material. On ascending the Castilian throne, (advised by his minister, Alberoni,) Philip V. determined to establish woollen manufactures on government account; an expedient which it is thought was adopted in order to punish us for siding with Austria in the contest which had just terminated, the members of whose royal family, while seated on the Spanish throne, always gave a preference to our manufactures over those of France.

The works of the new royal manufactory of woollens, pompously announced under the title of St. Ferdinand, commenced in the year 1718, at the castle of Ateca, part of the king's domain at Aranjuez, and so great was the spirit of hostility then displayed against England, that it was hoped by this new development of national industry even to deprive us of our customary sales of woollen goods in Portugal; a project for the realization of which it was expected that the proposed navigation of the Tagus would afford facilities. The charge of this establishment was confined to Baroa

de Ripperda, an introduction which, although a foreigner, enabled him to become prime minister, and opened to him a career the most extraordinary that ever marked the annals of intrigue.

At a heavy expence operatives were procured from Holland, and so great was the energy displayed that every inmate of the palace seemed to take an immediate interest in the success of an enterprise, for the promotion of which no money was spared. The climate, however, not proving favourable to the foreign workmen, before the expiration of the second year the establishment was removed to the city of Guadalajara, ten leagues from Madrid, the directors having in the interval also ascertained that a population is essentially requisite for manufactures on a large scale.

Prosperity was far from attending the speculation; every year, in fact, brought fresh losses. The quantity of articles manufactured would not bear so large an outlay of capital, and the salaries of the *employés* besides absorbed the profits. In the way of competition the Guadalajara cloths were sold twenty per cent. cheaper than those imported, but not being so fine in quality, or so slightly, even with all the power and influence of the government, it was found impossible to force a market.

At length it was determined that the royal and magnificent manufactory of woollen cloths—the national fabric which owed its origin to the great Alberoni and a grandson of Louis XIV—the source of wealth destined to stop half the looms in England, should be delivered over to a privileged company, to be administered by them under the auspices of the government, and this arrangement was sanctioned by a formal decree, dated July 29th, 1757.

In spite of the warm support which the undertaking experienced from Charles III., and the economy introduced under the new system, eventually it proved a failure, and in 1769 the government saw themselves compelled to take back the whole concern into their own hands. Large sums of money were again expended on the works—new plans were devised, and fresh operatives procured, principally from France, but the scheme would not answer, and the whole perished when Napoleon marched his armies into Spain.

In the mean while however, Spanish raw wools continued to enjoy a decided preference in the markets of Europe. So indispensable to the manufacture of fine cloths were they deemed in England, even so early as the year 1667, that an attempt was made to introduce into the commercial treaty, then concluded with Spain, a special clause, allowing British subjects to purchase in Spanish ports all the stock intended for shipment, to the exclusion of other nations.

This dependency on Spain for so essential an article as fine wools, was felt both by the English and the French manufacturers, although from their contiguity the latter were enabled to procure supplies at a much cheaper rate than we could. The French first hit upon an expedient to free themselves from the necessity of having recourse to their neighbours, in order to provide the wools necessary to feed the manufactures of Louvier and Sedan. Notwithstanding the jealousy of the Spaniards, through a little diplomatic dexterity, Charles III. of Spain, towards the year 1785 was induced to send a present of 360 Merino sheep to his relative, Louis XVI. and although several died on the road, the remainder took to the country and prospered.

This was the first experiment made by the

French towards an improvement in their breeds of sheep, and to a certain extent it proved successful, although it is a fact that in 1795, the best Spanish wool in France sold for eight livres and ten sols per lb., when home-grown would not fetch more than thirty sols. From this period, however, the improvement of sheep became fashionable in France, and so continued even during the horrors of the revolution. With an eye to business, and at a moment when Spain was crouching at their feet, the republicans introduced a secret article into the treaty of Basle, concluded with the Spanish government in 1795, permitting them to export 5,000 Merino ewes and 500 rams, a grant which Spanish statesmen have ever since deplored, as having been the precursor of the loss of their old and valuable trade in wool.

By this means the flocks throughout France were improved, and in the end a wool adapted for all combing purposes was obtained. By crossing the weight of the fleece also increased, and by a succession of experiments it was further ascertained that for the production of fine wool the periodical migration of sheep is not necessary, a circumstance to which the Spaniards chiefly attributed their boasted superiority. Nothing in fact could have proved more beneficial than the introduction of this stock. It opened a new source of national prosperity, and rendered the French manufacturers of fine woollens independent of foreign supplies of the raw material. Speaking of the incident above mentioned, M. Bourgoing says, that it was "a pacific conquest, more precious than any acquisition which could result to France from military successes in Spain."

The same anxious desire to improve the breeds of sheep prevailed in England towards the close of the last century, and the spirited exertions of the Board of Agriculture, seconded by several patriotic noblemen and farmers, will be well remembered. Among the individuals who laboured to promote this branch of husbandry the name of Lord Somerville stands conspicuous. He first introduced the Spanish breed among us, and by a series of researches and experiments, the result of which was published for the benefit of the public, endeavoured to rouse the apathy of our farmers. The maxim then was, that to render ourselves independent of foreign supplies, it was necessary to increase the quantity of our own wools, more particularly the finer qualities. So little progress, however, had been made in 1800, that while the best Spanish wool in that year rose as high as 5s. 3d. per lb., superior English did not sell for more than half that price.

The early growth of wool and the establishment of woollen manufactures in England have already been noticed. So valuable were the latter considered by our ancestors, that the importation of foreign wool was declared free of duty, and this enactment, intended to insure an adequate supply, continued in force till the year 1802. With a similar view, the exportation of home grown was prohibited in 1660, under which restriction it continued till 1825, when it was removed. Some persons have been inclined to think that this old prohibition arose out of the idea that English wool was unequalled in quality, and consequently that it would be well to exclude the foreign manufacturer from a supply. It ought however to be borne in mind that, at the period when this protecting law was passed, the value of the clip, or the fleeces, shorn in England, did not exceed two

millions, and in 1699, our woollen goods exported did not amount to more than 2,392,292l.

In 1828 it was stated in evidence before a committee of the House of Lords, that English wools had, within the last thirty years previously deteriorated in quality, owing to the endeavours made to improve the flesh. By repeated crossing the form of our sheep was rendered more beautiful and even their size increased; but the quality of the wool has not improved. Lean sheep produce the finest wool, a fact very observable in Spain, where the Merinos are far from being distinguished by a fine figure. Neither have the experiments made to increase the quantity had a favourable effect on the quality of English wools. Hereford sheep, usually kept lean, produce the finest wool, and their fleeces average 2lbs. each, whereas the Norfolk breed, kept in better condition, yields 3½lbs., but the quality is inferior.

Notwithstanding the efforts made within the last sixty years to improve our wools—notwithstanding the skill and energy of so many intelligent and spirited individuals in various ranks of life, not excepting the most exalted, who have applied their time and their capital to sheep husbandry, the quality of English fleeces avowedly has not been raised in an equal proportion with those of the northern nations, which have attended to the same pursuit, and where the climate cannot be deemed more favourable. So little adapted is our wool for the finer class of goods, that in the inquiry instituted before the committee of the Lords in the year before mentioned, it was established that superior cloths cannot be manufactured except from foreign wool.

So serious in this respect was the manufacturer's experience, that in 1809, soon after the French armies crossed the Pyrenees, Merino wool sold in London for 8s. and 9s. per lb., and so inflated were some holders that they asked nearly double those prices. The twenty-seven millions of sheep, supposed to be pastured in England and Wales, did not besides afford a sufficiency of the raw material to feed our manufacturers. This deficiency tended to enhance the price, and, at the same time, rendered our dependency on the foreign market more evident, a state of things the more lamentable, as our woollen manufacturers afford employment to more than half a million of persons, and their annual produce is now estimated at nearly twenty millions sterling.

In the meanwhile, however, a great change in the growth and supplies of wool was going on. Influenced by the example of France, in 1795 the king of Denmark sent a trusty agent to Cadiz to procure Spanish sheep, who succeeded in smuggling away a small Merino flock, and the captains of Danish vessels returning home were also offered a premium for such sheep as they might be able to bring with them from Spanish ports. Sweden adopted similar expedients, when improved breeds gradually spread to Saxony, Wirtemberg, and other parts of the Germanic empire, thus opening a new and prolific source of wealth to the persevering and industrious inhabitants of the several states.

In 1812, the first sample of German wool, weighing 28lbs., was sent over on trial, and the quality was so much approved of, that in two years afterwards our shipments from the same quarter equalled 3,432,456lbs., and in 1825 rose to the astonishing quantity of 28,799,661lbs. Since that period there has been a slight decrease, the importation of 1839 not having exceeded

23,837,805lbs.; but so perfect have the Germans become in the management of sheep and the preparation of their fleeces, that in our market their wool is now held in much higher estimation, more particularly that of Saxony, than the Merinos of Spain ever were. The wool is better adapted to felting purposes, yielding cloth remarkable for its fineness of texture. This surprising increase in the quantity of sheep and improvement in fleeces have been obtained in Germany, notwithstanding the flocks, during six months of the year, are fed artificially, and, to avoid the rigours of a severe climate, subjected to much confinement.

Through this competition the supplies of Spanish wool gradually decreased. In 1800, they amounted to 7,794,748lbs.; in 1814, to 7,234,991lbs.; in 1827, to 4,349,643lbs.; in 1833, to 3,339,150lbs.; and finally, in 1839, they declined to 2,409,634lbs.; and it is thought that ere long the importations will cease. At present a bale of this article seldom finds its way to an English loom.

Another valuable source of supply has recently opened on the British consumer. A dozen sheep, conveyed in 1795 (a year truly memorable in wool transactions), from the Cape of Good Hope to Australia, and to which were added a few small shipments from England, became the nucleus from which flocks have, in a short time, spread over our settlements in and near New Holland. The first remittance of wool from that quarter reached England in the year 1806, and did not exceed 224lbs. In 1833, it equalled 3,516,869lbs.; in 1838, it rose to 7,834,423lbs.; and in 1839, including Port Philip, Van Diemen's Land, and Swan River, the total importations from our new colonies equalled 10,107,561lbs., with every prospect of a corresponding advance.

The arrivals of wool from Southern Africa equally present a new feature in commerce. In 1800, a small bag was received from the Cape of Good Hope, and considered a curiosity, having been obtained from a new breed, the parent stock of which left Spain eighteen years previously. This improvement appeared the more valuable, as the fleece of the native sheep is seldom used, the wool being harsh and resembling hair. This new branch of industry at first, however, seems not to have experienced all the attention which it deserved, for in 1829 our importations of African wool did not exceed 37,619lbs. In 1838, they rose to 422,506lbs., and the next year to 626,214lbs., with a fair prospect of a gradual increase.

From the East India Company's territories wools also begin to arrive, and it is confidently expected that the quantity will be considerably increased, as soon as the resources of the countries lately won by the valour and perseverance of the British soldiery are developed. In 1839, the returns of the East India wool imported already amounted to 2,103,546lbs. It is therefore expected that, by the opening of these three sources, we shall, in the course of a very few years, receive from our own settlements a supply of sheep's wool equal to our wants, a saving to the country of five or six millions sterling, annually expended in foreign markets to purchase the staple commodity required for our looms.

It consequently behoves the government to see that the sales of our woollen goods abroad are diminished as little as possible. England has now, also, become a valuable entrepôt for the raw material. Since the removal of restrictions in the year 1825, the exportation of wool, foreign and domestic, has been considerable. In 1838, it

reached 4,992,116lbs., and in 1839, 4,603,799lbs., the principal shipments being made to Belgium, France, the United States, and Holland. In 1839, 3,320,441lbs. of British woollen yarn were also shipped to the same countries, and in the same year the declared value of our woollen goods exported was 6,271,645*l*.

In the interval the Spaniards have lost their old trade in wool. Thrown on their own resources, they are now, in fact, obliged to consume an article which their former customers will no longer purchase from them. Their flocks have certainly recovered from the ravages experienced during the French invasion, but the fairs of Segovia, Soria, and Leon are comparatively deserted. This branch of commerce has, consequently, passed away, in all probability for ever, and it thus appears that the sacrifices made to retain it were founded on erroneous principles. In a rich and fertile country, where a large portion of the land is in mortmain or neglected, agriculture, supported by good roads and canals, would have been attended with more permanent advantages.

Those who were long the general suppliers of fine wools are, consequently, under the necessity of establishing manufactures among themselves, in order to work up a commodity entirely left on their hands. They have not, however, either a Phillip V. or an Alberoni, to assist them in an enterprise wholly depending on the efforts of individuals, but on this account it ought not to be overlooked by the British clothier.

The Spaniards calculate that every year, by smuggling and fair trade, they take from us in woollen goods at the rate of two millions sterling, and he will be held as a staunch patriot who can rid them of this supply. They will not stop to inquire who is to drink their wines and consume their other exports. After all the loans obtained in England, and the other services more recently rendered to them, their feelings are not now more favourable towards us than at the close of the first War of Succession. If they can accomplish their objects in view, we may, therefore, expect to find them among our rivals in the manufacture of woollens, more particularly in reference to Portugal. It may, therefore, be worth while to take a glance at the facilities which they possess of becoming our competitors.

Formerly Segovia took the lead in the manufacture of woollen cloths; and towards the close of the last century its looms still amounted to 600, which nearly disappeared through the invasion of the French. On the restoration of peace it was, however, determined to revive this branch of national industry, and as early as 1825 the number of working looms there had been raised to 800, which, in the course of that year, made 240,170 *varas*, or Spanish yards, of middling cloths, 130,580 ditto coarse, and 130,000 ditto serges. A few of the same class of manufactures were also established in other places, but the want of capital and machinery prevented their progress. The convulsed state of the country also deters many persons from entering on speculations of this kind. Nevertheless, we ought not to forget that the Spaniards possess the raw material.

The proportion of black fleeces in a Spanish flock is equal to one-third, all of which are manufactured; but as they do not go into the dyers' hands, the cloth made from them is of a middling colour, and never acquires a jet hue, owing to the inequalities of the material. There is, also, a dingy brown cloth made from wool in its natural

state, chiefly worn by the peasants, which gives them a sombre appearance. Besides these there is a dark speckled cloth, used by some of the monastic orders, and also brown blankets, as well as a variety of serges, suitable only for the common people; but fine English and French woollens are so much more sightly and fashionable, that their use cannot be dispensed with so long as they can be obtained.

It is, therefore, presumable that the Spaniards are again acting on an erroneous policy in encouraging woollen manufactures to the detriment of agriculture. Their population is not large enough to combine both. They have long tried the experiment with the cottons of Catalonia. Under the plea of protecting them, other valuable interests have been sacrificed, and the government besides deprived of a large amount of revenue.

And yet, after all, the existence of these boasted manufactures is almost imaginary. The greater part of the goods supposed to be derived from them are French and smuggled in, being allowed to pass current in consequence of their having a Catalonian label upon them. This is a common fraud, well known to the officers of the customs. The labels are, in fact, often forged. Were these cottons genuine, the Spanish women would not wear them. The consequence is, that as many as 100,000 smugglers, of the most desperate character, are constantly employed in the clandestine introduction of foreign cottons, among which ours bear a large proportion, at the same time that all the exertions of our resident diplomatists have failed in obtaining from Spain a commercial treaty.

AGRICULTURAL LIBRARIES.

The following is an extract from the circular issued for the purpose of establishing an Agricultural Library at Liverpool, alluded to by Lord Stanley, in his speech at the Meeting of the Liverpool Agricultural Society.

"While no county in England can vie with that in which we live in the extent of its manufacturing industry, or in the wealth which that industry, directed by science and ingenuity, has produced, our agriculture has long been in a sadly neglected state. Within the last few years, indeed, we may hope that some tendency to improvement has exhibited itself; the institution of agricultural societies has diffused among our farmers a general consciousness of their own deficiencies; a spirit of greater emulation is arising among them; they are becoming more sensible of their want of skill, and more desirous of availing themselves of the experience of others, to remedy their defects; and some few, more enterprising than their neighbours, have already made considerable advance in the path of practical improvement. But the majority require to have placed before their eyes the evidence of what has been done elsewhere, and how it has been done, as an encouragement, and as a proof of what may be done by themselves. Few of them can afford the means, or the leisure, to visit the districts in which better systems of agriculture are pursued; many of them are unable to purchase information diffused through a great variety of publications, which they would yet most thankfully receive; and it can hardly be expected, or even wished, that they should run the hazard of trying experiments, of which they have not seen the results, and with an imperfect knowledge of the steps by which those results have been attained. In order, then, to make easily accessible to all who may

be anxious to obtain it, the fullest information respecting the most approved systems of farming, and the means of becoming acquainted with, and studying, the sciences connected with agricultural industry, and thus to place within the reach of all, amusement, instruction, and practical improvement, it is proposed to establish in Liverpool, for the benefit of the farmers of Lancashire and Cheshire, who frequent that market, a 'Farmers' Lending Library,' to be supported by annual subscriptions, to be paid in advance, of five shillings only; such subscription authorizing the subscriber to take home with him, one at a time, any book in the library, and to receive another, from time to time, upon the return of that previously taken.

"It is proposed,

"That the library shall be made up of the most approved works on agriculture and the sciences which may be brought to bear directly upon it.

"That it should be open as soon as the number of subscribers shall amount to one hundred, or the annual subscriptions to 50*l*.

"That it should be open, in the first instance, every Saturday, on which day a person should be in attendance to give out the books which may be required, and receive back those returned.

"That the affairs of the institution shall be managed by the governors thereof, who shall consist of all annual subscribers of one pound and upwards, with whom it may perhaps be desirable to associate a limited number of subscribers of five shillings each, to be chosen by the subscribers at large.

"The first duty of the governors will be to meet for the purpose of engaging premises, appointing a person to superintend the library, selecting books to be ordered in the first instance, and framing more detailed regulations for the conduct of the institution."

AGRICULTURE.

STATISTICS OF FRANCE.

REPORT TO THE KING BY THE MINISTER OF AGRICULTURE AND COMMERCE.

SIRE,—I have the honour of presenting to your Majesty a new volume of the statistics of France. It is the fourth of the collection, and the first of the agricultural part. It comprehends in its two volumes the agricultural statistics of West France, consisting of the 43 departments to the east of the meridian of Paris.

The extent and importance of the subject, the novelty of the means of investigation which it has required, and the force of the obstacles which it has been necessary to surmount, will, I hope, justify the developments which I shall submit to your Majesty's inspection.

I shall first set forth what has been done up to the present time to throw light on the agriculture of the kingdom; I shall afterwards show by what combination of means and dispositions this great inquiry has been conducted, and I shall conclude with a statement of the principal results that it now offers, and which embraces half the kingdom of France.

HISTORICAL.

Louis XIV., in prescribing to the intendants of provinces to collect together materials with which to form the general statistics of the kingdom, especially recommended them to include the facts relative to agriculture; but at this period, from which we are a century and a half distant, nothing was prepared for such vast and difficult investigations. The maps which represented the

territory differed from each other 5,818 mean leagues in the extent, or nearly one in four. There was no register of the physical and agricultural division of the country; the impost, which varied from one province to another both in form and quota, gave no light of which use could be made to estimate, even by approximation, the quantity and value of the natural productions on which it was levied. The censuses of the population, without which it is impossible to form a just idea of the consumption, were imperfect and defective. They were made according to the district, either from the number of families or the number of hearths, and there was no fixed rule of agreement as to the number of individuals that each method must necessarily include. The opinions upon this subject differed so much as to increase or diminish the population by nearly one-fifth; which left an uncertainty of 20 per cent. in all that concerned agricultural production.

In such a state of things it could not be expected that the intendants should be able to make any satisfactory investigation into the state of agriculture in the provinces under their inspection; and in effect their reports only contained scattered and unconnected facts and generalities too vague to admit of employing numerical representations. Nevertheless the want of these representations was already much felt in the inquiries into social economy, of which this age gave the first examples; and to supply the need of information with which official documents could not furnish him, Vauban had recourse to a method which seems strange to us in the present day, but which was then ingenious. Accustomed by the science of war to calculation and observation, he made a minute topographical investigation of some parts of our western provinces, and he determined what was the mean extent of each species of surface in a territory of a square league of 25 to the degree. He came to the conclusion that there was in this extent—

Arpens communaux.	Hectares.
2,706 in arable land, or	1,142
300 in vineyards	126
500 in pasturage	211
600 in wood	252
252 in houses, gardens, parks	106
16 in ponds, marshes	6
80 in roads, rivers	33
236 in commons, and waste or barren land	99
4,690	1,975

It was according to these data, applied to the entire surface of the kingdom, that Vauban supposed the territory of France to be distributed in the following manner:—

	Square leagues.	Hectares.	
Arable lands	15,616 ..	30,854,000	more than half.
Vineyards	1,722 ..	3,402,000	— 1-16th
Land in cultivation	17,332 ..	34,236,000	— 3-5ths
Pasturage	2,883 ..	5,697,000	— 1-10th
Woods and forests	3,444 ..	6,804,000	— 1-8th
Houses, gardens, and parks	1,444 ..	2,852,000	— 1-19th
Ponds and marshes	82 ..	102,000	— ..
Roads and rivers	451 ..	891,000	— ..
Commons, waste, or barren lands	1,304 ..	2,673,000	— 1-20th
Total surface of France ..	27,000 ..	53,315,000	

These numbers were not by any means, as has been frequently supposed, correct arithmetical calculations, explaining the real state of the

country; they had no foundation but in a bold conjecture, which supposed that it was practicable to conclude, by assimilation, from 1 to 10,000. Such multiplied chances of error caused the extent of arable lands, and particularly of vineyards, to be exaggerated; but on the other hand, the surface of woods and forests was considerably diminished, and the truth would have been more nearly approached by making the extent of waste and barren land five times greater.

We should have supposed that more correct notions were acquired when, in the reign of Louis XV., the economists discussed with talent the questions relating to production. This, however, was not the case: the publicists of the day, discouraged, no doubt, by their barren researches into the records of the state, confined themselves to particular cases and to hypothetical examples, such as those of a single estate or a farm of which they computed the produce from real or probable data, but which could not be generalized.

Since the attempts made by Louis XIV. to arrive at the extent of the cultivation, and that of the production, a whole age passed without any progress. An undeniable proof of this is given by two celebrated men, who to supply the want of all authentic information were obliged to have recourse to the most singular expedients.

A skilful English agriculturist, Arthur Young, who travelled over our provinces in 1788, having searched in vain, in the documents of that period, for numbers expressing the extent of the different parts of the territory, divided according to its physical and agricultural state, conceived the idea of obtaining statistical data by the following process:—he applied his excellent and numerous observations to a general map of France, which they carefully cut in pieces according to their indications; he weighed each of the fragments, then comparing the total weight of the map with the extent of surface which it represented, he determined the proportion of these two terms, and the arithmetical number of each particular weight gave him that of each species of surface. The only excuse for the use of such a method is that there did not then exist any other less defective, and the proof of it is in the method which was made use of a short time afterwards on a solemn occasion.

The committee of the National Assembly, charged in 1790 to prepare the establishment of a system of taxation upon a rational basis, not finding in the archives of the kingdom the positive data which they required, had recourse to the assistance of a learned and illustrious man, Lavoisier, who, having been one of the farmers-general, must have elaborated with the advantage of a superior mind all the statistical notions which were then possessed on this important matter.

The writing which the committee received in reply is a rare and curious document, and may be considered as giving in an official manner the state of economical science, as respects France, at the end of the last century. This document proceeds in the following manner in what relates to the agricultural statistics of the kingdom, which is the only object to which we are now referring. He lays down, in the first place, as a principal fact, an accessory which would now be altogether neglected, and which we cannot see without surprise, adopted as the foundation of all his calculations. It is the number of ploughs. He proves that there were then in France—

320,000 worked by horses.
600,000 worked by oxen.

920,000		Arpents. Hectares.	
Each plough—			
Worked by horses, ploughed in autumn.....	30	15	22
Worked by oxen	15	or	7,66
Worked by horses, in spring.....	30	or	15,32

Of these numbers it was concluded that there was annually:—

Arpents. Hectares.
9,600,000 or 4,902,910 cultivated by horses in autumn.
9,000,000 or 4,506,480 cultivated by oxen in autumn.
9,600,000 or 4,902,910 cultivated by horses in spring.

28,200,000 14,402,300 in grain.

It was supposed that the fallow ground was exactly of the extent of the land cultivated in autumn, and that there was, consequently,—

Arpents. Hectares.
9,600,000 or 4,902,910 in the districts cultivated by horses.
9,000,000 or 4,506,480 in those cultivated by oxen.

18,000,000 or 8,490,400 in fallow ground.

It was admitted, moreover, that there was in the districts cultivated by oxen an extent of ground in unprofitable pasture double that of the fallow ground—viz.,

Arpents. Hectares.
18,000,000 or 8,490,400 in sheep walks and commons.

These united numbers led to the belief that there was—

	Arpents.	Hectares.
In corn land	28,200,000 or	14,402,300
In fallow ground	18,000,000 or	9,449,300
In waste lands and commons	18,000,000 or	9,193,000

Total of arable land 64,800,000 or 33,064,000
Total of meadow, wood, &c... 40,200,000 or 20,530,910

Total surface of the kingdom 105,000,000 or 52,625,000

In examining these statistical returns, we find that not one of them was the result of local investigations, and that they were nothing but a chain of deductions drawn from the hypothesis, that it was possible to know the extent of arable land by the exact number of its ploughs. This is what had been already imagined by some of the intendants of provinces in endeavouring to execute the instructions of Louis XIV., and we see with astonishment, that at a distance of a century agricultural statistics were still reduced to such an expedient, and that they had made in reality no progress during this long period.

This great enterprise found more numerous facilities, when, in 1810, Napoleon commanded the execution of a general statistic of France. Then the excellent work of the division of the territory into departments, the operation of the register of lands, the regular assessment of taxes, the censuses of the population, a centralized administration, and the more extensive diffusion of public instruction, were auxiliaries which must have been of essential service. At the same time the effects of these advantages were exaggerated in an extraordinary manner, when, by means of a circular, 334 statistical questions were addressed to each of the prefects, and these functionaries were required to give the solution in two months under pain of being deprived of their employment. The government was completely deceived in its expectation; for, three years after, wishing to exhibit the situation of the empire, it was obliged to borrow from the inventories of the administration of the consolidated taxes the numbers relating to vineyards and their produce, and could only give a summary table of the crop of grain, in which all kinds were confounded together in all

respects, and in which a single figure expresses all the numbers belonging to 10 or 12 departments. This form, which was no doubt necessitated by the imperfection of materials, takes away all value from this document, because it does not permit us in any way to compare either the production of a department or that of any species of grain. It does not even allow us to know the total of the crops attributed then to one territory, for it complicates with the 86 departments of ancient France the 45 others which had been united to it, and of which the crops, in consequence of this confusion, could not be separated.

The undertaking of the statistics of France, and the management to which it was entrusted, were suppressed in 1814; and the new administration, who were not sparing of reproaches, resolved to proceed differently in what concerned agriculture. Instead of numerical tables, the execution of which, it is said, was too difficult, it required details of observations and of valuations to which it gave the whimsical title of moral accounts. Nevertheless, from the following year the political necessity of having some idea of the disposable subsistence of the population caused it to return to the arithmetical calculations, the use of which it had condemned. From that time was established the custom of requiring of the prefects annual reports of the crops of grain of their several departments. These reports, and above all the collection of prices given by the weekly averages, furnish information which in some emergencies may be useful to the government, but they do not constitute an agricultural statistic, as some publicists have supposed, and to be convinced of this it is sufficient to consider their mode of execution.

The first document of this information manifests its character and its bearing; it is a table sent annually to the prefects dating from 1815, and which contains in its columns eight series of questions. The first—"What is the population of your department?" expects a direct and decisive reply; and indeed the census, which ascends from the smallest village to the largest town, gives the power to satisfy this demand by an exact number. But as for the other questions, of which the object has never been submitted to similar investigations, the interrogations are framed in quite another manner.

They run thus literally—"At how many hectolitres do you estimate the crop in wheat, in meslin, in rye?" "At how much do you estimate the quantity of grain necessary annually for the consumption of your department?" "At how many hectolitres do you estimate the excess of the resources above the consumption, or the deficiency of these resources?" "At how much do you estimate the quantity of grain necessary for the nourishment of the inhabitants, that for the nourishment of domestic animals?" &c.

Neither the expression nor the sense of these questions permits us to believe that they could elicit anything but estimations in the mass, left entirely to the discretion of the prefects; and it must necessarily have been thus when they were required to separate, in the production of such and such grain, the quantity consumed by animals from that which was consumed by men, an operation which is practically impossible, and which can only be attempted by means of arbitrary estimations quite without the limits of statistics.

The numbers sent in reply by the prefects can have no other origin, for, with the exception of the vine, the register of land furnishes no return

of the extent of cultivation, the lists of taxes give none of agricultural produce, and the *octrois* only indicate the consumption of large towns, of which besides a considerable part escapes their action. Thus the official documents throw no light upon agriculture, and to obtain this a special investigation was necessary, which before, 1838, had never been attempted nor even projected.

When this investigation was appointed and prescribed, every one of those who were required to assist in it cried out upon the impossibility of its execution. But, if this had existed, nothing was more easy than to reproduce it, and since everything was to be done, it was because till then all had remained in ignorance. There was no knowledge, in reality, either of the extent of cultivation or of the quantity of seed that it required, or of that of the proportional produce; and the numbers assigned to each of these things were chance estimation, and deprived of all rational foundation. We can appreciate them exactly by this remarkable fact, that an administrator who, since 1815, had furnished 23 times the calculation of the crops of a department was unable to give that of a district, or even of a parish. Thus it is very easy to enumerate masses when we take no account of their elementary parts; and, on the contrary, it is extremely difficult to arrive by the analysis of elements at the knowledge of the composition of masses.

It results from these facts—

1. That during the whole of the 18th century agricultural statistics have drawn their numerical terms exclusively from a system of induction so broad, that the observation of a territory of a league square has concluded the determination of the whole surface of France: that from the number of ploughs they inferred the extent of cultivation; and that the physical and agricultural division of the country has been deduced from comparing the weight and the surface of the map of the kingdom.

2. That in times less remote this system of induction has been substituted by that of arbitrary estimations, which give at once the total of all things, leaving entirely unknown the individual numbers of which they must be essentially formed. From which it follows, that while in appearance there was not wanting a single return to the agricultural statistics of a department, there did not exist one upon the different parts of which its territory is composed.

It was reserved, Sire, for the reign of your Majesty, to see these fruitless attempts of a century and a half restored at last to better methods, which will make known with certainty and precision the agriculture of France, that first interest of the state, that noble science which nourishes the people, and which has always excited the most lively sympathies of your Majesty.

MEANS OF EXECUTING OF THE PRESENT AGRICULTURAL STATISTICS.

The programme of the general statistics of France, which your Majesty condescended to receive in 1835, pointed out agriculture as one of the principal parts of this great enterprise, and one which ought to take place after those which made known the territory and the population. A circular of the 12th of July, 1836, orders the prefects to prepare the materials for it, and prescribes to them the means they were to take to arrive at this object.

Experience has taught how, with the power of Louis XIV. and the will of Napoleon, it was pos-

sible not to succeed in the execution of the agricultural statistics of France; but it did not indicate in any country of Europe by what means it was possible to arrive at it. It was necessary to make it the subject of new and serious studies, which led us to consider the following as being the principles of the matter:—

1. The extension of researches up to the first elements of numbers, in order to arrive at the highest degree of certainty possible.

2. The use of tables drawn up with uniformity, filled up upon the spot, and guaranteed by the functionaries by whom they were executed.

3. A restrained limitation of the nomenclature of these tables, in order that the extent of labour should give neither motives nor pretext to find the undertaking of it impossible.

4. The option of diminishing the number of figures, by excluding those which may be obtained by an exact deduction, such as the total value of the different productions, which it is easy to ascertain when we know their quantity and their price.

5. The multiplication of the means of revision, of correction, and of controul, applied to the results of all the successive operations of which the investigation is composed.

The end and utility of these means will be better appreciated by their practical application than by the simple declaration of them.

Two very different methods may be employed in the undertaking of the agricultural statistics of France—the one prompt and easy, consisting in the valuation of all things in mass, in each department, and more or less arbitrary; the other, long and complex, proceeds, on the contrary, by collecting the necessary data, even from the smallest localities, and it is by bringing together the arithmetical results of each commune that we successively formed those of cantons, of districts, of departments, of regions, and finally of the whole kingdom. This latter having been considered as the only rational method, it has been resolved to employ it in executing in each of the 37,300 communes of France, a register of agricultural domain, an inventory of its rural products, a census of its domestic animals, and a table of its consumption.

To attain this end, instructions have been addressed to the prefects and transmitted by them to each of the sub-prefects and mayors, with such modifications as the diversity of places required. To these instructions were joined a model table, the columns of which were ordered to be filled up by arithmetical numbers, explaining in metrical measures or in decimal money the extent of each species of cultivation, of pasturage and of wood, the quantity and the value of their annual produce, and the quality of each kind of consumption. The reverse of this table indicates the number of the different species of domestic animals, the value of each species, and their annual revenue, mean and total. These returns are completed by a statement of the number of animals slaughtered, and by everything that relates to the consumption of meat, as well in quantity as in value, and both collectively and singly by each inhabitant.

The whole of the numerical terms required for each commune do not amount to more than 36, and in places where the cultivation is little varied they are reduced to 30, that is to say, to 1-11th of the number of statistical questions, to which it was necessary to reply by arithmetical figures according to the programme of 1810. But, however limited and simple these returns may be, the great

number of persons called upon to furnish them caused it to be foreseen that cases would occur in which the research would not find sufficient zeal and capacity. The Ministerial instructions in investing the mayor of each corporation with the commission of drawing up the agricultural table have therefore ordered, that if he had need of co-operators or assistants, the prefect should designate for this purpose the superintendent of direct contributions, the taxgatherer, the commissioners of forests, the governors of institutions, or any other public functionary, and that he should claim the aid and concurrence of all the principal citizens, particularly of those who composed the agricultural societies and meetings. This confidence has not been in vain, and in a multitude of instances the principal inhabitants of the rural districts, men of great information, but strangers to this kind of labour, physicians, justices of the peace, and clergymen, have voluntarily lent their assistance, and have given assiduous and devoted attention to these researches.

Nevertheless, so vast an undertaking, executed for the first time, and where statistical knowledge was yet but little spread, must necessarily have met with great and numerous obstacles. In many cases the inquiries have been received with distrust, as tending to serve some fiscal purpose; but these false ideas have not obtained credit. In general the difficulties have taken place in the rural communes, by the tendency to reply rather by words than by figures; by the defective notions of metrical measures; by the common use of characters nearly illegible; and, above all, by the novelty of the work, which caused the exaggeration of the least impediment. In other places, the difficulties have been owing to these causes:—The opinion that such an undertaking must necessarily be executed, like the public register, by agents appointed and paid for the purpose; the prepossession which considered the greater part of country mayors as incapable of arithmetical labour; an obstinate disposition to modify the general plan according to a multitude of particular points of view; the want of the completion of the cadastre, and even the nomenclature of different sorts of surfaces of ground, which in so large a country cannot be exempt from variation, uncertainty, and confusion. It is not without use to note these difficulties, in order to foresee and prevent the effects of them at another opportunity.

To obviate the difficulties, which consisted in the omissions or errors of the arithmetical calculations, the prefects have submitted the tables of communes to commissions of revision formed by cantons and districts, and a central commission created in the chief place of the department. Great improvements have been introduced in the work by these re-unions of intelligent men, having practical acquaintance with agriculture and the knowledge of localities.

To obtain from all parts of France, without a single exception, the 37,300 tables of agricultural statistics, was no doubt the most difficult operation in this vast undertaking; but another was necessary which was almost equally long and arduous, in order to make these materials useful; this was the operation of faking them to pieces and transforming them.

It was impossible, indeed, to think of publishing the statistics of the communes separately, for it would have formed a library of 250 volumes in quarto of 300 pages each; and the results, which it is of so much importance to know, would have been buried under the enormous mass of detail. In order to reduce the

work to suitable proportions, it has been necessary to decompose, figure by figure, the tables of the communes, and to form of them tables of arrondissements, divided according to the nature of the products. Thus the figures of the 19,000 communes of eastern France have been reduced in such a manner as to be represented by those of 177 arrondissements; and 830,000 numerical terms have been converted into between 8,000 and 9,000 by the parcellary additions of their elements. For example, as respects only wheat, 289 lines furnished by the arrondissements of Laon are summed up in one, and all the figures explaining the details of this production in the 859 communes of the department of Aisne are analyzed in six lines in a table which exhibits the general results with clearness and exactitude.

Instead therefore of at once and by an arbitrary estimation attributing, as formerly, a production to a department of which the local distribution had never even been investigated, by the method followed in this new work we ascend gradually from the calculations of communes to those of the arrondissement, and from those of the arrondissement to general terms which make known the agriculture of the department.

Without doubt, numerical operations of so extensive a nature require great and persevering efforts: but, besides the advantage of conducting to the desired end, they have that of acting as a touchstone on the calculations submitted to their multiplied proofs. Some short details will show what are these proofs.

In the tables of communes we find unavoidably registered in the same column the production of each different cultivation. The figures by which this is expressed not having any proportion between them do not offer any means of comparison. But the abridged tables are of quite another value for this object; they are divided according to the nature of the products, and exhibit in the same sheet, in continued series, the quantities of wheat, of meslin, of rye, of barley, &c., returned by each commune in a given extent of cultivation. This extent, the quantities of seed and of produce, their prices, and the consumption of them, are brought together in a manner to detect every omission, and to render apparent every exaggeration either of increase or diminution. These are the testimonials which are made use of in the daily correspondence of the board of general statistics, to require from the departments, verifications, or rectifications which have taken place in the same localities in which the errors have been committed.

The tables of analysis, which alone are printed, furnish still more numerous and efficacious means of revision. They are formed from all the additions of the abridged tables, and take into consideration everything relative to each sort of cultivation. We find in them 50 different species of statistical returns, which are repeated for each arrondissement, and which exercise a mutual control over each other. For example, by bringing together the sum total of the production, and that of the extent of cultivation, and dividing the first by the second, we obtain the quantity of produce per hectare. This quantity returned in hectolitres and in portions of a hectolitre, is indicated in the same column for all the arrondissements, and thence is established between them a comparison which does not permit any number, either too low or too high, to escape an attentive examination.

The conversion of quantities into values, by the application of mean prices, corroborates this proof; for, by showing what sum is obtained by the cultivation of a hectare in one arrondissement, it furnishes a return which must be analogous to that which is

drawn from a similar operation as regards the neighbouring arrondissements.

It is to be remarked that the thread of this analogy is sometimes suddenly broken in places where produce rises or falls in an extraordinary manner. But these are exceptions of which we may easily find the cause in a well-known superior fertility, such as that of the arrondissement of Meaux, or in the neighbourhood of large towns which furnish abundant manure for cultivation.

It is not to be denied that these proofs may disclose a slight lessening of the produce, such as a deficiency of a hectolitre to the hectare. But they guarantee that no considerable error can introduce itself into this inventory of our agricultural riches; and when in such a matter we can flatter ourselves at arriving so near the truth that there is no chance of being remote from it more than 1-15th of the distance gone over, we may be persuaded of having obtained a degree of exactness which is not inferior to that of either statistical documents which have obtained the approbation of science and the esteem of the public.

I venture to hope, Sir, that you will pardon me these technical details, in acknowledging that it is by them that we shall measure the degree of certainty of so many facts which are essential to the prosperity of France, which is the object of the constant solicitude of your Majesty.

ON SHED-FEEDING SHEEP.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir,—Having seen a letter in the "Mark Lane Express," 31st August, 1840, signed "An Irish Farmer," explaining some particulars respecting the shed-feeding of sheep, and in which the writer is so kind as to add, that he would be happy to afford any further explanation on this subject, founded on very long experience, may I request to know, through your most excellent Journal, the nature and dimensions of the house or open shed which he finds most convenient for feeding a few sheep for house use, say five, ten, or twenty. The late Horace Townsend, of the County Cork, in the first volume of "Munster Farmer's Magazine," p. 39, states his mode and the result. "The sheep, (five in number) got two feeds of potatoes per day, 10lbs. in each. Hay was kept in their rack, and a lump of rock-salt in the manger; after three weeks he had a fat sheep per week, the meat of remarkably good quality, and the produce of fat much greater than in the usual mode of feeding. A sheep put in poor will be good mutton in six weeks; by this practice a gentleman without even one acre of land, may supply his table at very moderate expence." Farther on, in the same work, Mr. Townsend, vol. 1, p. 209, says "on revising the account, (alluding to the former extract) I am afraid that, like some of my brother innovators, I may have been carried away a little too far by the ardour of what appeared to be an important discovery. * * * It has been objected to that the time allowed for a sheep to fatten is shorter than experience and general knowledge can allow, and I believe the objection is not ill-founded. To ascertain this point exactly, will require an accurate attention to the time of enclosing, and the condition in which the animal happens to be. Of this I shall be more careful in the course of future practice, acknowledging that the former report was taken rather from appearance than reality, from what I believed rather

than from what I knew to be the case." Again in vol. 2, p. 121 of the same magazine, he says, "I continue to practise the method of shed-feeding sheep, with success, and have found some imitators in my neighbourhood. A gentleman of Ross, who has but a few town fields and never had a sheep before, now supplies himself with good mutton of his own feeding. He began last summer to feed them with clover, and since the month of September has supplied its place with potatoes and hay. He allows each sheep (wethers of the common breed, about 13 to 14lbs. per quarter) seven pounds of potatoes per day. A sheep put in, as the butchers call it, clean, or just in fleshy condition, but by no means fat, will be good mutton in six weeks, and prime in two months; some of course are more thriving than others, but few will require a longer time to fat than here mentioned."

I cannot find in any of the subsequent numbers of the magazine, that Mr. Townsend has given any further account of his own success. I am, therefore, I suppose to presume that Mr. Ross's experiment coincided with Mr. Townsend's experience, namely, that a sheep weighing 13 or 14lbs. per quarter, put into house in fleshy condition and fed with 7lbs. of potatoes per day with hay, will be prime mutton in two months.

I am quite sure "An Irish Farmer," would confer a high favour on many country gentlemen as well in England as in Ireland, if he would take the trouble to furnish ample details of his mode of shed-feeding sheep, founded on his long experience, through the columns of your useful publication.

Sept. 21, 1140.

A MUNSTER FARMER.

ON HOOSE IN CALVES.

By T. MAYER, SEN., V. S., NEWCASTLE-UNDER-LYNE.

(Abstracted from *The Veterinarian*, vol. 7, page 585.)

I have lately met with this very fatal disease in several calves belonging to a neighbouring farmer. He had lost five before he consulted me; a sixth, which was nearly dead, I sent to my establishment, and thus had an opportunity of examining it soon after death. The disease is accompanied by, or seems to be entirely dependent on, the existence of worms in the bronchial tubes and air passages into the lungs. I have sent you some specimens of them; they belong to the *strongylus* species, and are one of the divisions of the *filaria*. They are from an inch and a half to three inches in length, and, when viewed through a microscope, resemble so many silver eels. The disease, from its very peculiar nature, must almost invariably be fatal.

The first symptoms which present themselves are a peculiar hoosing or husky dry cough. The animal soon begins to droop and lose flesh; and as the disease advances, the breathing is very much quickened, accompanied by an evident sense of oppression about the chest and a grunting noise, and the pulse beats one hundred times in a minute. The appetite is not much affected; rumination continues, and the bowels are regular throughout the whole period of the disease. The discharge from the nose is of a mucous, and not a purulent character.

The animal sometimes lingers from three to five weeks, the symptoms becoming more and more aggravated, the countenance anxious and distressed, the ears drooping, the eyes sunk in their orbits, the

nostrils distended for air, the breathing more and more rapid, accompanied by this grunting distressing noise, and the beast is constantly restless: the emaciation and debility is extreme; and at length the poor beast terminates its career from exhaustion and suffocation; the bronchial tubes, even to their minutest ramifications, being completely plugged up with knots of worms imbedded in mucus. It is a remarkable circumstance, and deserving of attention, that the appetite continues good, and the bowels regular to the very end of the case. Upon laying open the whole extent of the trachea, or the bronchial tubes, I found the lining membrane much less inflamed than could have possibly been expected. The inflammation was greater, however, in the bronchi than in the superior air passages.

A great quantity of worms occupied the larynx and fauces; but this may partly be accounted for, from the head and neck, after death, lying lower than the body, and thus some of the worms gradually gravitating down; yet the bronchial tubes seemed to be completely blocked up. The posterior and superior part of the lungs possessed much of their external natural colour; but, anteriorly, they were much inflamed. When cut into, the substance of the lungs seemed to be thickened, and indurated anteriorly; posteriorly and superiorly it had more of its natural structure, but was studded with red, vascular, and indurated patches, giving it a variegated appearance.

The abdominal viscera, and the interior of the intestines were free from worms. The mesenteric glands were not enlarged.

As the summer has been very dry, and the water of which the cattle drank, upon that particular farm, was very stagnant, I consider the calves to have taken the ova up in drinking, and which passed into the circulation, and were arrested in their progress in the place where nature designed them to be brought to maturity.

Since the calf died from which these worms were taken, I have had another placed under my care, upon which I performed the operation of tracheotomy.

I then passed a whalebone probing through the wound up to the trachea, as far as the larynx, but I could not reach any worms, nor was I more successful in passing it down to the commencement of the bronchial tubes, but the animal received great and immediate relief from the operation.

I consider this operation a failure as to its enabling me to extract the worms, but it is certainly highly useful in affording so much relief.

I am trying the effect of Indian pink, combined with saline medicines, at the same time compelling the animal to inhale the vapour arising from melted tar and turpentine. I can say nothing of the ultimate effect of this mode of treatment at present; but it certainly has relieved the urgent symptoms.

I shall feel obliged by your inserting this letter in *The Veterinarian* in order that the attention of practitioners may be brought to bear upon this subject, that some efficient mode of cure may be suggested. Clater, and some other writers, describe a mode of treatment, which I consider would aggravate, rather than cure the disease, even if adopted, as they recommend, in the earliest stage of it.

I am very much inclined to consider the cures that are said to have been effected, as those of common cold, and not of this peculiar malady.

As many of your contributors will no doubt feel interested in having the ultimate results attendant upon the treatment of those cases of bronchitis, noticed in a former number of your journal (vol. vii. p. 585), I have much pleasure in forwarding the particulars without further preface, except that I would

apologize to Mr. Youatt for not having noticed in my last paper his article upon bronchitis in that valuable publication, *The Farmer's Series*; it did not meet my eye till some time afterwards; had I seen it, it would have superseded much that mine contained. Having thus made the *amende honorable*, I shall proceed:—

The little patient, upon which the operation of tracheotomy had been performed, recovered much of its condition, spirit, and appetite; but as the wound in the trachea gradually healed up, it pined away again, and ultimately sunk, although the Indian pink, conjoined with saline medicines and fumigations, were followed up to the last. On a post-mortem examination, I found not more than half the quantity of worms as in the first case, many of them having no doubt been expelled, or crept out through the opening into the trachea. The anterior and middle portion of the lungs were of a bright vermilion hue, shading gradually off to their natural colour towards their posterior portion, the lining membrane of the bronchi and air cells was much inflamed, but not so that of the trachea.

I consider the operation of tracheotomy, in extreme cases, as a most valuable aid; but it should be done low down, as it affords in the first place, greater facility for the expulsion of worms; secondly, by admitting currents of cold air immediately upon their nidus, it renders their habitation less tenable; thirdly, it allows you as the wound closes up, the opportunity of operating again above. The operation is of the highest importance too in taking off the spasmodic effect produced upon the laryngeal muscles from the sympathetic irritation and effects of the worms, occasioning asphyxia to a great degree, but which is immediately removed by the operation; the animal breathing afterwards comparatively easy.

There were now five other calves left, nearly of the same age, and which had been running out along with the others ever since they were weaned; these were labouring under the same affection. Finding the medical treatment adopted in the last case did not succeed, I determined upon giving the turpentine a fair trial; for which purpose I combined some oil of turpentine with common olive oil, but the farmer felt so prejudiced against using any strong medicines, that he would not give it, for he had not only administered before he applied to me tar-balls, but the strong remedies recommended by Clater, under the effect of which the calves were fast sinking. I therefore advised him to try a remedy my father used to employ with success, consisting of half a pint of lime water every morning to each calf, and a table spoonful of common salt dissolved in half a pint of water every afternoon; keeping them out at grass, and varying their pasture from time to time. This plan of treatment was regularly pursued for some time, and succeeded; the remaining calves were soon in perfect health, and suffered very little in their growth: in fact a stranger not knowing the circumstances, would not suppose they had laboured under any disease. Where lime water cannot be procured conveniently, I would recommend half a drach. of aqua kali, pur. in half a pint of linseed tea, as a substitute. Common salt is a valuable medicine, either as a preventive to the development of worms, or as a specific against some of the species, as the fluke-worm, &c., it is particularly obnoxious to them either in or out of the body.

There is little doubt that it must be transmitted along the absorbents, and pass through the secreting vessels with the proximate elements of which it is composed, in as intimate a union as when taken into the stomach: for it is a well known fact that bodies taken into that viscus will become ab-

sorbed into the circulation, and pass apparently unaltered through the secreting vessels of some of the glands of the body. If the secretions formed by the mucous membrane of the bronchi become impregnated with the muriate of soda, it would render the worms sickly, and occasion them to quit their hold, in consequence of which they would be easily expelled through the larynx and nostrils. Some individuals are in the habit of giving a table spoonful of powdered savin in half a pint of milk daily, with tolerable success. Others dress the inside of the nostrils with oil of savin, and administer a small portion of the same daily, diluted with vinegar. An old cowleech told me he was always successful with the oil of savin. Some extel *assuetudinis* rubbed down with vinegar. In consequence of the inflammation of the bronchial tubes and lungs, the administration of turpentine, or other strong anthelmintics, is of dubious policy; for whilst you are striving to steer clear of Scylla you may fall into Charybdis; but it is the duty of the veterinary surgeon to watch narrowly the progress of the symptoms, and take his tack accordingly. It appears upon inquiry into the history of this singular and fatal affection, that where calves are of strong and vigorous constitutions, so as to wrestle with the affection till cold weather sets in, they will spontaneously recover.

It occurs in all situations, and upon every description of soil; but is most frequently met with upon low marshy districts, particularly where the water percolates through a peat stratum of soil. Farms situated upon marshy strata are the least subject to it.

It prevails to a great extent during very dry years, when the pit water upon different farms becomes nearly dried up, and rendered putrid and full of animalculæ, as was the case upon that particular farm where the above cases occurred; on this account I should strongly recommend the flinging into the pits, from time to time, some quick lime. As cattle are much addicted to go into the water during warm weather, and remaining there for some time, voiding their dung and urine, our worthy Professor at the Veterinary College suggested the idea of the ova being furnished by this means, which *a priori* would appear very probable, as the worms belong to the species of intestinal worms which are found deposited in all situations of the animal body. A friend of mine, however, furnished me with a fact which militates against this idea. He has two farms, one situated high and upon a calcareous marly stratum, where the disease is seldom or never known; and the other lies low, and has a large piece of ground, into which he turns his young colts and sheep, but which possesses a peat bottom. On one occasion, although warned by a neighbour as to the consequences, he turned his young rearing calves into it, every one of which took the hoose; but by immediately sending them to their old quarters, they soon recovered. He stated, moreover that his upper farm had only pit water upon it, which although in dry weather the ponds were nearly dried up, and rendered foul by the cattle standing in them dunging and staling, yet the beasts remained free from the disease.

From the little that is known of the history of these parasitical animals, it is impossible to say whether they are taken up in their state of ova from the fluids received into the intestines, or whether the ova are deposited within the nostrils, and there hatched to that point where their instinctive propensities develop themselves, so as to guide them to that situation where they are found and brought to maturity. I myself consider that the vegetable matter and soil

through which the water filter furnishes the ova, which being taken into the stomach and intestines, and being smaller than the globules of which either the chyle or blood is composed, pass easily through the absorbents, and even the secreting vessels of the glands, and of mucous, or even serous surfaces. This appears to be the only way in which we can rationally account for their being found in various parts of the body in which they are met. I can readily conceive it possible for the ova to be transmitted through every series of ramifying vessels in the body, and yet not become developed until accidental circumstances turn up, such as a diseased gland, so as to favour the unfolding of that vital and vivifying principle inherent in seed of every kind. In my last paper these worms are stated to belong to the strongylus species, but upon examining them more minutely, I consider them belonging to the variety called ununaria; the characters of which are, body filiform, elastic, head with membranous angular lips, the tail of the female needle shaped, and that of the male armed with two hooks encased in a pellucid vesicle.

The characters of the strongylus species are body round, long, the fore part globular and truncate, with a circular aperture, fringed at the margin, and the hind part of the male hooded, that of the female pointed.

P.S.—I forgot to state that my son has met with three species of worms in the bronchial tubes and air-cells of an ass, whilst dissecting at college; and what was very singular, there were no urgent symptoms before the animal was killed to lead to any suspicion of their existence.

(To be continued.)

HUNTINGDON AGRICULTURAL SOCIETY.

The Show and Ploughing Match took place on Wednesday, Oct. 7. The ploughs and teams left the Market Hill at eight o'clock in the morning and set in on two grounds of Mr. James Veasey's, at Godmanchester. The show of stock and implements was considerably larger than last year. At four o'clock above 400 persons sat down to an excellent dinner in the Assembly Room, Court Hall, supplied by Mr. Cartwright, of the Fountain Inn. The Earl of Sandwich in the chair, supported on the right by Lord St. John, Sir R. H. Hussey, Colonel Linton, Mr. C. Barnett, the Rev. Jas. Linton; and on the left by J. B. Rooper, Esq., Edward Fellows, Esq., M. Geo. Thornhill, Esq., M.P., D. Martin, Esq., and nearly all the landlords and tenants in the county. The usual routine of toasts applicable to the occasion, commencing with the Queen, were enthusiastically drank, and the proposers vied with each other in combining the interests of the landlord, tenant, and labourer, in one social bond, and recommending still further rewards to be held out to the labourers, tending to correct their social and moral habits.

The following prizes were then awarded:—

Class 1.—Double ploughing with two horses abreast, John Sharman; owner, Lord St. John, of Melchbourne, first prize 2*l.* 10*s.* 2nd prize, Francis Hill; owner, Geo. Bowyer, Didington, 1*l.* 10*s.* 3rd prize, Wm. Robinson; owner, W. Bowyer, Southoe.

Class 2.—With three horses single, Wm. Fisher; owner Mr. Jas. Veasey, Godmanchester, 1st prize 2*l.*; boy, 10*s.* 2nd prize, William Duncan; owner, Rev. Jas. Linton, Hemmingsford, 1*l.* 5*s.*; boy, 5*s.* 3rd prize, Wm. Dighton; owner, Mr. James Veasey, Godmanchester, 17*s.* 6*d.*; boy, 2*s.* 6*d.*

LABOURERS AND SERVANTS.

Class 1.—William Hodge, aged 56, has a wife and ten children, has received the sum of 24*s.* within the last four years on account of severe illness, 1st prize, 2*l.* 10*s.* Joseph Ellis, aged 51, has had 13 children, brought up nine, about 20 years since received from his parish 4*s.* per week for eight weeks in consequence of being kicked by a horse in his master's service, has lived upon Mr. Beeche's farm: Hemmingsford Abbots, 38 years, 2nd prize, 2*l.*

Class 2.—The labourer who shall have worked the greatest number of years without intemperance on the same occupation or with the same employer.—Simoa Bass, aged 65 years, lived with Mr. Isliss, of Swinhead, never received parochial relief, 1st prize, 2*l.*—2nd prize, Philip Grocock, aged 61, lived 50 years with Mr. Harradine, of Needingworth, 1*l.* 5*s.*, 3rd prize, Wm. Gregory, aged 65, lived 47 years in Mr. Fletcher's family at Rampton, 15*s.*

Class 4.—Maid servants who have lived the greatest number of years in the same occupation or with the same master or mistress.—Ann Knightly, 63, lived 40 years in Mrs. Ulph's family, 1st prize, 1*l.* 10*s.* Ann Wheelhouse, 58, lived 31 years in Mr. Button's family, St. Ives, 2nd prize, 1*l.* Elizabeth Warrington, 48 yrs., lived 21 years, 3rd prize, 15*s.*

BENEFIT CLUBS.

The labourer or servant who shall have subscribed the greatest numbers of years.—Robert Gadsby, aged 71, 48 years and 5 months, 1st prize, 1*l.* 10*s.* Stephen Meny, 77, 48 yrs. and 5 months, 2nd prize, 1*l.* Thos. Foster, 75, 47 years, 3rd prize, 15*s.*

SHEPHERDS.

The shepherd who shall have reared in the present year, the greatest number of lambs from any number of long-woolled ewes, not less than one hundred, proportionably.—William Sawyer, servant to Mr. Vipan Sutton, ewes 105, lambs 160, 1st prize, 2*l.* William Hill, shepherd to Mr. R. Daintree, of Hemmingsford, 334 ewes, 455 lambs, 2nd prize, 1*l.* 10*s.*

SHORT WOOL CLASS.

Thos. Gilbert, shepherd to his Grace the Duke of Manchester, 158 ewes, 202 lambs reared, 3 ewe lost, 2*l.*

STOCK.

Class 1.—J. B. Rooper, Esq., Ripton, three wethers under 2 years old, 1st prize, 8*l.*

THREE THAVES.

Class 2.—H. W. Beaufort, Esq., of Holme House, Biggleswade, 1st prize, 8*l.* Mr. Ladds, of Ellington, 2nd prize, 4*l.*

Class 3.—3 ewes that have suckled lambs to the 15th July last.—Rev. James Linton, Hemmingsford, 5*l.*

Class 4.—5 ewes fed on grass only.—Mr. W. Elphisher, of Sutton, 3*l.*

NEAT STOCK.

Bull of any age, Mr. R. W. Laxton, Morborne, 10*l.*; bull under 2 years, J. B. Rooper, Esq., Ripton, 5*l.*; milch cow of any age, Mr. W. Ladds, Ellington, 5*l.*; 2 steers under 2 yrs. old, Mr. W. Ladds, do., 5*l.*; 2 heifers under 2 years old, Mr. W. Ladds, do., 5*l.*; oxen of any age, Mr. George, of Rythorn, 10*l.*

SOUTH-EAST HANTS AGRICULTURAL ASSOCIATION.

PRESENTATION OF A PIECE OF PLATE TO THE SECRETARY, C. OSBORN, ESQ.

The fifth anniversary of this association, which was instituted for the purpose of affording encouragement to industrious and meritorious agricultural labourers resident in the south-eastern district of Hampshire, was celebrated on the 14th ult., at the Red Lion Inn, Fareham; where the President, Vice-Presidents, Commit-

tee, the Stewards, and a large party of gentlemen and others interested in agricultural pursuits (in all about 130), partook of a sumptuous dinner, dessert, and fine flavoured wines, served in excellent style by Miss Harris. The successful candidates for the various prizes, to the number of about 100, were also regaled in an adjoining room with a good substantial dinner, and a liberal allowance of strong beer.

The chair was ably filled by the President of the Association—H. P. Delmé, Esq., of Cams, near Fareham. Messrs. Appleby and J. Baker officiated as Vice-Presidents.

Among the gentlemen seated near the Chairman, were—Sir Lucius Curtis, Bart., Rev. Sir H. Thompson, Bart., the Hon. and Rev. W. Howard, Rev. W. Harrison, W. Thresher, Esq., W. Abbott, Esq., J. Barney, Esq., Capt. Chads, R.N., James Warner, Esq., James Martin, Esq., J. G. Bouchier, Esq., E. G. Jones, Esq., W. Higgins, Esq., Rev. G. Abbott, James Thresher, Esq., Edward Paddon, Esq., C. Osborn, Esq., S. Burrell, Esq., &c., &c.

Immediately opposite the Chairman stood the testimonial purchased by subscription, and intended to be presented on this occasion to Charles Osborn, Esq., the Secretary. It is a magnificent centre ornament for a dining table, and consists of a tripod base, supporting three figures of husbandmen with spade, seedlip, and sickle, a centre stem with three branches, forming an elegant candelabrum (made after the design of that presented to the Earl of Leicester on his elevation to the Peerage) and bearing the following inscription:—

“Presented to CHARLES OSBORN, Esq., by the members of the South-East Hants Agricultural Association, and other friends, to mark their approbation of his indefatigable exertions in establishing the Society, and as a token of the esteem in which he is held by his neighbours.—Sept. 14, 1840.”

The usual loyal and other toasts having been drank, and the prizes distributed to the successful candidates, the Chairman upon the occasion of returning thanks on his health being drank, said, “It would be recollected that at the last anniversary meeting of the Association, it was unanimously resolved that some appropriate testimonial should be presented to their worthy Secretary, Mr. Osborn, in acknowledgment of his indefatigable exertions. This had been carried into effect, under the superintendence of the Committee, and the presentation was fixed to take place at this meeting. They were all so well acquainted with the merit and private worth of Mr. Osborn, that it would be unnecessary to offer any remarks on his high character; it therefore only remained for him to request that gentleman to accept the piece of plate which now stood before him, as a testimonial of the esteem and regard which the members of the Association entertain for him, coupled with a sincere hope that he will long continue to enjoy the good wishes of his friends, and to advance the good work which he has so ably commenced. Having presented the plate, he would call upon the company to fill a bumper to the health of Mr. Osborn, with three times three.

Mr. OSBORN (after the general cheering with which he was greeted had ceased), said he rose under such considerable excitement that he could not command words adequately to express his feelings on an occasion calculated to call forth all the sentiments of gratitude and regard which the human heart could develop—when such a disinterested mark of respect was conferred upon him, which he little merited, and he could assure the company, never contemplated. It was true that he had been the first to call the attention of gentlemen to the objects to be achieved by means of such an Association as the present; but it was equally true, that had it not been for the zealous co-operation of the President, the Committee, and officers, his exertions would long since have been forgotten, and he should not have had the honour to meet them on that day to celebrate its fifth anniversary. He could assure his friends that this splendid tribute of their liberality would ever be a subject of grateful recollection to him—it would live long after he had ceased to breathe—he would leave it to his children, as a memorial of the favourable manner in which their father's exertions had been viewed. It was

gratifying to notice that similar associations had been established in various counties, the members being officers in the army or navy and civilians, who had merged all difference of political opinion, and united to promote the desirable object. Such institutions as these afforded the opportunity of becoming intimately acquainted with the character of the English peasantry, whom he felt confident would be found loyal, and patient under trials; and, should unhappily the country require their services in the event of a war, they would come forward, and prove that they were Englishmen still. Since the first foundation of this society, about 800*l.* had been distributed in rewards, and the labourers' cottages had become greatly improved in consequence of the incentive held out; and he hoped that every cottager would have a garden, in which he could occupy his leisure hours, and thereby add to the comfortable support of his family. In his opinion agriculture was still in its infancy, and great improvements were capable of being made; it was therefore, he thought, desirable that all interested in the cultivation of the soil should join hand in hand in promoting improvement, and thereby increase the wealth and stability of the nation. He thanked the company most sincerely, from the bottom of his heart, for the valuable testimonial which they had been pleased to present to him; it would stimulate him to future exertion, and would exist when he had ceased to breathe. It reminded him of an expression of a venerable old man, who, on receiving a premium from the society, said—“This 5*l.* will do me more good than 50*l.* of parochial relief—it will be something to talk about when I am dead and gone.”—*Abridged from the Hampshire Chronicle.*

NORTH SUFFOLK AND SOUTH NORFOLK AGRICULTURAL ASSOCIATION.

The Autumnal Show of this Association was held at Eye on Tuesday, Sept. 29. The show of stock was not quite so large as that of last year, owing to the recent meeting at Harleston, and the unpropitious state of the weather. It took place in a large meadow at the back of the residence of Thomas French, Esq., and for quality was rather superior to that of last year. There were two or three remarkably fine Suffolk mares upon the field; and some very fine sheep, belonging to Sir Edward Kerrison, Bart., M.P., and Mr. Thomas Crisp. There were also some very fine Suffolk bulls and heifers on the ground; one of the former, belonging to Lord Henniker, M.P., attracted much attention, as did also a bull, belonging to Mr. Thomas Crisp. There was also a good show of swine.

Among the samples of corn shown for prizes, there was a coomb of Talavera white wheat of Mr. Bull of Thornham, which was particularly admired. It was very bright and plump, and handled well. It appeared to be considerably finer than any sample of the same description exhibited at Cambridge. A coomb of oats, belonging to Sir Edward Kerrison, likewise attracted much notice; as did also a coomb of red wheat exhibited by Mr. R. B. Harvey, of Harleston; together with a coomb of Chevalier barley, shown by Mr. Bull.

Sir Edward Kerrison exhibited some good specimens of mangel-wurzel.

The Ploughing Match took place in a field in the occupation of Mr. Samuel Peck, of Langtown Green, and was well contested, the ploughing being done in very good style, notwithstanding the rain.

The judges of the stock were Mr. Seth Sparke, of

Pakenham; Mr. Wm. Denton, of Rushbrooke; and Mr. Thos. Capon, of Dennington.

At four o'clock 100 gentlemen partook of a capital dinner, provided by Mr. Allen, at the Assembly-room. Sir Edward Kerrison, the president of the association, took the chair, supported on the right by Lord Henniker, M.P., and on the left by the Right Hon. and Rev. Lord Bayning. There were also present—E. C. Kerrison, Esq., the Hon. and Rev. W. Henniker, the Rev. J. Bedingfield, the Rev. R. Cobbold, the Rev. H. Kirby, the Rev. T. D. Evans, the Rev. W. Spencer, Captain Thomas, J. J. Tuck, Esq., T. Utton, Esq., C. Smythies, Esq., Osmund Clarke, Esq., Mr. T. Crisp, Mr. J. Gadeney, Mr. Etherage, Mr. R. B. Hervey, Mr. Case, Mr. Diggins, &c. &c. Mr. Flowerdew, and Mr. S. Gowing, officiated as Vice-presidents.

The following awards of the premiums were read by the secretary, Mr. Case:—

PRIZES FOR STOCK.

	£	s.	d.
To the owner of the best Suffolk cart stallion, no competition	3	0	0
To the owner of the second best Suffolk cart stallion, no competition	2	0	0
To the owner of the best Suffolk cart mare, Mr. Day, of Stoke	3	0	0
To the owner of the second best Suffolk cart mare, Mr. Berry, of Stoke	2	0	0
To the owner of the best two-year old Suffolk filly, Mr. Flatfoot, of Redlingfield	2	0	0
To the owner of the best Suffolk bull, Lord Henniker	3	0	0
To the owner of the best bull of any other breed, no competition	3	0	0
To the owner of the best Suffolk cow, Mr. S. Peck, of Eye	3	0	0
To the owner of the best cow of any other breed, Mr. R. B. Harvey, of Harleston ..	2	0	0
To the owner of the best heifer for dairy, Mr. Day, of Stoke	2	0	0
To the owner of the best 2-shear Southdown tup, no competition	2	0	0
To the owner of the best shearing Southdown tup, Sir E. Kerrison, Bart., M.P. ..	2	0	0
To the owner of the best shearing tup of any other breed, Mr. C. Etheridge, of Starston	2	0	0
To the owner of the best five shearing Southdown ewes, Sir E. Kerrison, Bt., M.P.	2	0	0
To the owner of the best five shearing ewes of any other breed, Mr. C. Etheridge, of Starston.	2	0	0
To the owner of the best boar, bred in Suffolk or Norfolk, Sir E. Kerrison, Bt., M.P.	1	0	0
To the owner of the best sow, bred in Suffolk or Norfolk, Sir E. Kerrison, Bt., M.P.	1	0	0

PRIZE FOR FAT STOCK.

To the owner of the best pen of five Southdown shearing sheep, Sir E. Kerrison, Bart., M.P.	1	10	0
To the owner of the best pen of five fat shearing sheep of any other breed, no competition	1	10	0
To the owner of the best fat steer or heifer of any breed, Mr. R. B. Harvey, of Harleston	3	0	0
To the owner of the best Norfolk or Suffolk home-bred steer or heifer, Sir E. Kerrison, Bart., M.P.	3	0	0

£ s. d.

To the owner of the best fat hog, Mr. Case, of Thorndon	1	0	0
To the owner of the best pen of five fat Southdown shearing sheep, Sir E. Kerrison, M.P.	1	10	0
To the owner of the best pen of five fat ewes, of any age, and of any other breed, no competition	1	10	0

PRIZES FOR CORN.

[The corn shown to be the growth of 1840.]

The first prize offered was two sovereigns, for the best coomb of wheat. The judges, Mr. John Sims and Mr. Wm. Smith, made the following report:—

In awarding the prize for corn, the judges beg to remark that with regard to that for wheat they felt themselves involved in considerable difficulty; two samples only have been exhibited, one of remarkably fine Talavera wheat, and one of red wheat.

Bound as they were by the terms of their instructions merely to award a prize to the best coomb of wheat, they could have no hesitation in at once awarding it to the Talavera wheat.

They would, however, respectfully suggest that in future it would be advisable to offer a prize for the best white, and one for the best red wheat.

In the present instance they have been compelled to decide in favour of a description of wheat which, however superior in meal qualities, is not so well adapted for the majority of soils in this district, as the red wheat exhibited by the other competitor for this prize, which they were bound to say is of decided purity and merit.

In conclusion, they take the liberty of recommending for the future the alterations already pointed out; and further, of advising that in the present instance the amount of the premium offered be divided.

The prize was accordingly divided between Mr. Bull, of Thornham, for his coomb of Talavera white wheat, and Mr. R. B. Harvey, of Harleston, for his coomb of red wheat.

£ s. d.

To the grower of the best coomb of barley, Mr. Bull, of Thornham	2	0	0
To the grower of the best coomb of oats, Sir E. Kerrison, Bart., M.P.	2	0	0

EXTRA PRIZES.

A silver cup, offered by Sir Edward Kerrison, Bart., M.P., for the best cultivated farm of not less than 100 acres, was awarded to Mr. Barnabas Bond, of Alburg, Norfolk.

A silver cup, offered by Sir Edward Kerrison, Bart., M.P., for the best managed dairy farm, where not less than six cows are kept, was awarded to Mr. W. Edwards, of Eye.

A silver cup, offered by the Right Hon. Lord Henniker, M.P. to the owner of the best pen of five Southdown shearing ewes, and one shearing Southdown tup, was awarded to Mr. Thomas Crisp, of Gedgrave.

A silver cup, offered by the Right Hon. Lord Henniker, M.P., to the owner of the best pair of two-year old Suffolk heifers for the dairy, and one two-year old bull, of the same breed, was awarded to Mr. Thomas Crisp, of Gedgrave.

TAVERHAM AGRICULTURAL SOCIETY.

On Thursday, the Taverham Hundred held its anniversary at Rackheath, where a large number of agriculturists assembled.

Among the company on the ground were—Sir E. Stracey, N. Mickelthwait, Esq., J. Longe, Esq., Capt. Stracey and his lady and friends, Wm. Burroughes, Esq., Rev. R. Holmes, Rev. T. C. Blofield, Rev. O. Mathias, Messrs. T. Allen, Oldhous, Amies, Barnes, Broughen, R. Cook, Samuel Cook, Drake, Doggett, Drake jun., Eaton, Etheridge, Felton, Gooch, Jas. Green, Juby, Holmes, C. Mayes, Pratt, Porter, Pearce, M. Redgrave, G. Read, Robinson, Sibel, Utting, West, C. Whaites, &c. &c.

At five o'clock near sixty gentlemen sat down to dinner at the Green Man; in addition to those we have named, the following gentlemen arrived—Sir H. Durrant, Josias Stracey, Esq., John Stracey, Esq., Captain Loftus, — Estridge, Esq., E. H. Lyon, &c.

The usual toasts having been given and responded to,

The PRESIDENT congratulated the society most sincerely upon the improvement which had taken place since last year, an improvement beyond his most sanguine expectations. He would next venture to address a few words to them on the subject of the breeding of horses. Now that the roads were so superior, and therefore lighter in the draught, it was necessary that the breed should be lighter, and their speed in that case would be greater; not only was this change necessary upon the road, but also at the plough. He had brought a pair of horses from Cheshire, and they walked faster than the ploughman could keep up. In Yorkshire they had a much lighter breed, and in order to show that because a bone was very large it did not of necessity prove that it was the heaviest, Sir E. Stracey quoted the fact that the bone of Eclipse was found to be much heavier than the largest cart horse, and the cause of this arose from the close formation of the racer compared with the loose and honey-comb nature of the bone of the cart horse. The Hon. Baronet then alluded to the objections that had been made against Norwich races, one of which was that it would tend to make the farmers jockies. He contended that races were beneficial, in so far as they tended to improve the breed of horses, which had been the main object of himself and his friends in establishing them. Sir Edward then quoted the large prices from 1 to 200*l.* each, which the farmers in the north obtained for their horses at Horncastle fair, from their superiority in breeding; and asked if it was not better to receive such, than to breed horses for a butcher's boy to beat along the road, and which fetched them not more than fifteen pounds. It should also be recollected that the foreigners gave large prices in this country for good horses, and he did not see why as good horses should not be bred in Norfolk as in any other county. The Hon. Baronet next adverted to the improvements which were now making in agriculture generally. He begged to express the gratification he felt at having seen so many farmers—some of whom were his neighbours—at the Cambridge meeting. Four or five years since, had it been recommended that they should attend such a meeting, the answer would have been "We don't want to go to them to teach us farming." What was the case now? farmers were gradually turning their attention to the effects of science upon agriculture, forgetting their old prejudices, and like truly scientific men tracing facts up to primary causes, and down to their effects. If they considered the wonderful works of the Almighty (perhaps this was not the place in which to mention a name of such reverence, and which for the present he would substitute Nature), they would observe that creation always proceeded in circles; that a bud is produced,

that after a time it dies, corrupts, and is again made the means out of which some other of Nature's creation is produced; that everything is formed of gases, which, after decay, are again absorbed by some other production, and again re-appear. Thus with ourselves we were made from the dust of the earth—at our death we again return to the earth, and the elements of which we were formed again re-appear in some other form. Sir E. S. then explained the various chemical substances of which organic and inorganic matter was composed, and recommended the farmers to make chemistry their study, as they would then be able more effectually, more economically, and more profitably to themselves, to cultivate their land, because they would thus become acquainted with the certain proportions of different soils, and what additions of marl or other elements would render them more suited for the particular produce they wished to raise. And in order to show the necessity of such particular knowledge, the President explained how certain proportions of the same ingredients would produce the very reverse of the object required; he therefore urged the importance of a knowledge of chemistry. The next object was the different qualities of iron, as well as the mode of case-hardening, which consisted in heating iron cherry red, and then rubbing it over with a composition made of the parings of the hoofs of horses and burnt leather. Iron was composed of three sorts, red shot, coal shot, and malleable. The first was tough when cold, and contained calcareous matter; the second, of which chains were too often made, was very apt to snap, and therefore likely to do much injury to the horses by letting them down when pulling at a heavy load. This contained silicious matter, and when broken had a bluish tinge. Malleable iron passed under ponderous hammers, from 3 to 4000 pounds weight, which drove out the destructive parts and made it of great ductility, tenacity, and malleability. He had received chains from Norwich which had broken from being made of the coal shot iron, and since he had given orders to have those of malleable, his chains had never broken. This was worthy the attention of farmers, as it was a matter of expense. The next subject touched upon by the President was entomology. He stated that he had ploughed twenty inches deep, and his turnips had nowhere suffered from the wire-worm. He was trying an experiment to find out what fly this insect became, and why he had not suffered, and he recommended them to do the same. Whatever the conclusion, they must not be surprised, for when they recollected that from the caterpillar which crawled on the earth the most beautiful butterflies came, which exhibited (though to the naked eye a mere down) all the same appearance as the feather, with its quill, which was apparent as in the bird; he said when they saw these things they must not be astonished, for it was only another proof of the infinite powers of God in comparison with the finite powers of man, and ought to induce them the more to follow up their researches, for although their progress had been great, still he believed the improvements in agriculture were nothing when compared with the means before them, and to which he believed there was scarcely any limit. All must strive to improve in some particular part. By this means much might be accomplished; recollecting, as the Scotch proverb has it, that "every little makes a mickle." He imputed the freedom of his turnips from wire-worms to deep ploughing, and he recommended its trial. After some further remarks, and thanking the company for their patience, the President sat down amid much applause.

Captain STRACEY, in returning his acknowledgements for the complimentary manner in which his health had been given and received, said that he took great pleasure in that meeting, and upon reflection, that pleasure was enhanced by the recollection that last year he had the day previous suffered from accidentally having taken poison, and he therefore had greater reason to be thankful to Providence for preserving him that day. He had been fortunate in obtaining a prize for a yearling filly, and he would offer a few observations on breeding horses, as he had paid some little attention to the subject. He had before him one of the best judges of a horse in the kingdom, Mr. Sibel, and Mr. S. agreed with him that the great error of the farmers was, that they did not breed from sufficiently large or roomy young mares, for if they did they would avoid having the hatchet or sour headed horses that they now bred from old mares. Again, if they discovered any particular faults in their mare, they should select a horse which had none of them, and by this means they would improve their breeds. It had gratified him to obtain the prize, but at the same time he should have been more gratified if some more practical farmer than himself had won it. The Hon. Gentleman then urged upon the farmers the benefits arising from liquid manure, which he had experienced to a great extent, and the formation of large tanks, for the receipt not only of the drainings of the yard, but from the outhouses, and related an anecdote applicable to the question. In conclusion Captain Stracey stated his intention to give a cup at the next meeting for the best ox of any kind, combining symmetry with weight.

DUNMOW AGRICULTURAL SOCIETY.

The following remarks were made at the late meeting of this society:—

Mr. Low said, he could not help expressing the pleasure he felt at seeing the Dunmow Society going on so prosperously, for he thought it reflected credit on the parent Association, and he had no doubt it would show a prosperous character to the world—*(Cheers)*—he repeated he had no doubt of it, coming from the stock from which it emanated. *(Cheers)* He had as a farmer regretted that some of his friends held back from these Associations, and he had asked many of them the reason for the want of support of what he thought the advantages arising from them; the reason, he was told, was that they were afraid of letting their landlords know certain little secrets, and he had replied that he thought the landlords could not be put too much in possession of those secrets, as it let them know the enormous expence the farmers were put to to produce the animals exhibited, and in the cultivation of their land: the landlords were in the dark on these matters some years ago, but they had now become practical farmers, and were put into possession of those secrets. *(Hear.)* There was another important institution with which he was connected—the Braintree Farmer's Club. Other clubs of this nature were now rising up, and many practical matters were coming out of them. They met once a month to discuss practical subjects of an important bearing on the cultivation of the soil; and he would recommend that on the heels of this Society they should form a Farmer's Club, which he believed would tend to improve the farmers, for as they might come from different districts, each might be able to put his neighbour in possession of certain facts that would

be of importance to him. He had learned much from the Braintree Farmers' Club, and he had no doubt that highly beneficial results would come out of that Society. *(Cheers.)* He again congratulated them on the state of the Society, and he had no doubt that if he met them next year, he should see them assembling in larger numbers than on the present occasion.

Mr. CHESHYRE said, he should like to explain something which had been said by Mr. Low as to the farmers not joining these Societies. It had been hinted to him that some mischief was done by inexperienced landlords, from the statements which were made of the produce of the lands; he alluded to one statement, that by a certain course of culture, Essex land was capable of growing eight quarters an acre. Now he (Mr. C.) had had great experience in farming, (not, perhaps, here, but in other places,) and he would defy any gentleman to come into that neighbourhood, and go to any fifty acres of land in any parish in the Dunmow Union, and grow eight quarters of wheat an acre. He knew these statements were made, that this quantity was grown from small patches of land, and it was said they might do it on a large scale; but the thing was entirely different—the small patch was not in the same situation as other parts of the land; and he thought landlords could not for one minute be deceived by it, or that they would take advantage of it. *(Hear, hear.)* It appeared to him that the landlord had a right to demand of the tenant the value of the land as it was by itself, but if the tenant by extra culture produced extra results, God forbid that they should live amongst landlords who would take advantage of it. *(Cheers.)* Lord Maynard was aware of the difference between a bad tenant, keeping the land in a bad condition, and ruining himself and his landlord, and another paying a fair rent, though the land by his own exertions became of twice the value to him. A landlord dare not take advantage of this; if he did he must ruin his own land, for the tenant's welfare was the landlord's welfare, the more he grew the better it was for the landlord, because if the tenant died or left his farm, it was sure to be let—*(Cheers)*—whereas if they let their land to a bad tenant they would never afterwards have it let at all. *(Hear, hear.)* He (Mr. C.) knew land where for a course of years there had been bad tenants; now it was in different hands, and the occupier grew twice as much corn, but should the landlord demand twice as much rent? If he did he must be besotted both to his own and to the agricultural interest. *(Cheers)* But still it might injure them by saying they were to go and grow eight quarters an acre, for the landlord says, "My land must be worth so much more, if they can grow that." *(Hear.)* There was a hail-storm in the district some years ago in which a great breadth of corn was destroyed, and a valuation of the loss was made by two gentlemen, to one of whom he (Mr. C.) remarked how low they had stated the average of corn; to which he replied he thought it was hardly fair to state it at three quarters an acre—he thought it was fairer to take it at twenty bushels. Yet this was the land on which the statements went forth that they were to grow eight quarters an acre. He thought these statements did a great deal of mischief, for an inexperienced landlord might argue from them,—“this is what my land is worth; and I will take for rent a proportion of eight quarters of Mr. Fookes' wheat.” *(Laughter.)* The statements which had been thus made were not the truth, they were exaggerations, and did mischief, though there was not one landlord in ten who would believe them.—*(Cheers.)*

SOUTH CHESHIRE AGRICULTURAL SOCIETY.

(ABRIDGED FROM THE CHESTER COURANT.)

The South Cheshire Agricultural Society, which was established three years ago, under the most favourable auspices, held its anniversary at Northwich, on Thursday September 29. The stock was exhibited in a piece of ground belonging to Mr. Deans, who kindly lent it for the purposes of the Society; and the Judges on the occasion, were Mr. Scotson, of Liverpool; Mr. Barratt, of Cumberland; and Mr. Hampson, of High Legh, in this county.

THE DINNER.

At four o'clock the subscribers and friends of the Society repaired to the Angel Inn, where a very excellent dinner was prepared by Mr. Gibson. About 160 sat down, and amongst the company we noticed the following gentlemen:—Geo. Wilbraham, Esq. M.P., Chairman; J. F. France, Esq., Vice-President; Sir Charles Shakerly, Bart.; Rev. G. Clayton; Lee Townsend, Esq.; Rev. J. Armitstead; Jas. Skerratt, Esq.; John Plant, Esq.; Jas. Tomkinson, Esq.; Rev. J. Brookes, Senior Rector of Liverpool; Mr. Woolf; Mr. Harper; Mr. Plant, jun.; — Swinburn, Esq.; Mr. Dodd; Mr. Prescott; Dr. Sproston; Mr. Leicester; Mr. Gresty; Mr. Martin; Mr. Harding; Mr. Wild; Mr. Palin; Mr. Antwis; Mr. Cawley; Mr. Nickson; Mr. Done; Mr. Tomlinson; Mr. Boden; Mr. Bolshaw; Mr. Webster; Mr. J. Remer; Mr. Vernon; Mr. Burgess; Mr. Acton; Mr. Brookband, &c. &c.

After the cloth had been removed, and the usual toasts drunk,

The VICE-PRESIDENT proposed "the health of the Chairman, Mr. Wilbraham," and complimented him upon the able manner in which he had performed his duties (*loud cheers*).

The CHAIRMAN, after expressing his thanks for the manner in which the toast had been received, said he had heard with the greatest satisfaction what had fallen from some gentlemen with regard to the subsoil plough. He perfectly agreed with Mr. Palin, that it was one of the greatest improvements ever introduced; but after all, they must look more particularly to that department of farming in which they were so highly favoured by nature—he alluded to cheese-making; and there was one point here, namely, the system of cheese colouring, to which he would beg to draw particular attention. It had been estimated by a very celebrated individual, that between 10,000*l.* and 20,000*l.* was annually expended by the farmers in the purchase of annatto, for the purpose of spoiling and poisoning the produce of the country. This fact was called to his attention a year or two ago, by a gentleman who had devoted the latter part of his life to practical farming. No man, he thought, united greater scientific attainments to knowledge of practical farming than Dr. Latham; and that gentleman had told him that their society would do comparatively little unless they looked into this matter, for they were constantly spoiling their cheese by this pernicious colouring. This was the view of Dr. Latham, and he wished that gentleman to write an essay, but his growing infirmities prevented him from complying, and he (the chairman) had not time to undertake the task. He had, however, informed the committee that he would give a premium for an essay on this subject—such an essay as would combine the chemical properties of the annatto with its adaption or inadaptation to cheese making. He should wish the essay to

comprise three points. The manner of its production and properties—the quantity exported, and the manner of adulteration,—and thirdly, follow the matter up in regard to the practical part of cheese making. He had scarcely spoken to one individual who did not declare that he preferred cheese without colouring, and he (Mr. Wilbraham) would not eat coloured cheese. If the public liked this painted stuff, let them, of course have it; but it was their duty as practical men to endeavour to show them its pernicious qualities. If any gentleman would undertake the essay, perhaps he, (the chairman) might be enabled to give him some assistance as to the quantity exported, &c. He hoped, in conclusion, that the society would go on increasing until all the improvements desired were carried into effect. He now begged to give "The Cheshire Dairymaids." (*Cheers*.)

The CHAIRMAN said the next toast was one which would lead them more particularly to consider the nature of the institution which they had that day assembled to support. And it certainly gave him the greatest satisfaction to see so many landholders, farmers, and practical men meeting together for one purpose—to impart and to receive instruction on agricultural affairs. He had long wished to see a society like this formed in the county of Chester—ever since, indeed, they had given up the Altrincham branch of the Manchester Society; and now it was established, he thought it might be productive of the most valuable results. He had pleasure in congratulating them on the appearance of the stock that day, and although the cattle was not very numerous, as the epidemic was at that time so prevalent, yet it was highly creditable to the county. He felt much pleasure in being able to attribute the improved condition of stock, in some measure, to the efforts of this society, and he was glad also to be able to state that the green crops of the county had much improved. There was much, however, for them yet to do, before they could compete with the great agricultural counties, as there were many crops in Cheshire which, he was sorry to say, bore more weeds than ears. The object he had at heart was not so much to introduce a novel system of agriculture, as to endeavour to make perfect that which they already possessed. One great object ought to be the improvement of the grass lands, and no improvement was so well adapted to that end as draining, and they never could have good sweet crops unless the land was well drained. A good practical farmer had just mentioned to him a new plan of draining, which he had practised with great success, and certainly draining was the foundation of all good farming. Even on the dry lands in Delamere Forest he had not one field which did not require additional draining, and every year he saw the necessity of using still further exertions to keep the water under. He did not intend to say anything with respect to the breeding of cattle, for he had not come there to deliver a lecture on agriculture, although this was a subject to which he had long directed his attention. The use of manure, however, was a very important part of farming. They all knew very well what the common manure was, but he found there had been a new sort of manure lately introduced into the country, which was spoken of very favourably, and if any gentleman present had tried it, he should be glad to hear them express the results. A friend of his had made the trial and found the result as follows. Three hundred square yards, or 1-16th of an acre, had been manured with half a cwt. of nitrate of soda, and produced 35 sheaves—125*lbs* of wheat, or 27 bushels to the acre. Three hundred

square yards without nitrate of soda on the adjoining butt produced 20 sheaves—86lbs. of wheat, or a little more than 18 bushels to the acre. The soda was laid on the field on the 15th of April. That was a most prodigious increase, and if it would always answer as well, it was certainly worthy of being generally adopted. It must also be admitted that nothing had been of greater importance to the Cheshire farmer than the introduction of bones, and he did not believe the dairy farms would be worth half so much, if it were not for the use of that manure. He would say nothing about irrigation, which was essential to good farming, but would observe that it was not only to his grass lands that the Cheshire farmer must direct his attention, but also to the cultivation of his corn. With respect to the cultivation of arable land he had little to say; but one improvement lately made was of the utmost importance, and would very much increase the general amount of produce—he meant the subsoil plough. Last year he visited Scotland, where this plough was much used, and he never saw such crops as were there produced. He was also told by a gentleman from Ireland, that the use of the subsoil plough was the making of the farmers there. He (the Chairman) had a plough which he exhibited at the last meeting, and he must confess it had answered the purpose extremely well. This plough, however, should always be conjoined with the system of draining—and then, whether applied to clay or lighter land, it could not fail of being attended with the most beneficial results. He understood that Mr. Woolf had used this plough, and he should therefore like to hear him state whether it had been of any advantage to him, for practical questions of this nature were the subjects which ought to occupy their attention at such a meeting as the present. There was another part of their society which he could not help approving of—he meant the system of giving rewards to husbandmen and labourers, for he did wish to unite all classes in defence of their improving agricultural system. No country in the world grew better corn than England, and no country was more capable of improvement; and he did think that man was the best patriot, who effected the best improvements, and was the best cultivator of his native soil. The Chairman concluded by giving—“Success to the South Cheshire Agricultural Society.” Nine times nine.

The President said, he had to propose the health of a gentleman to whom they were highly indebted for the valuable services he had rendered to the society; he meant their worthy secretary, Mr. Martin, which was drank with three times three.

Mr. MARTIN rose and said—Mr. President and gentlemen, I am afraid the poor services I have rendered to this most excellent institution are far short of entitling me to the high honour you have done me in drinking my health in the very flattering manner you have done; but since you have been pleased to condescend to pay me such a mark of respect, it certainly becomes my duty to acknowledge it, by offering to each of you my most sincere and grateful thanks. I cannot help taking this opportunity of congratulating you all upon the immense benefits which have already arisen to the agricultural interests of this county, by the formation of this society, and I feel convinced, that the noble ends for which it was established, will, ultimately, be accomplished in an eminent degree. My occupation, naturally, gives me a pretty good opportunity of ascertaining the effects produced by the operations of this institution; and whether I happen to be riding through the country, or enjoying that

society I so much delight in, viz., my agricultural friends, some fresh proof presents itself daily, and almost hourly, of the success of this undertaking. I conceive it to be the duty of every man who may entertain an opinion upon any particular subject connected with the welfare of agriculture, manfully and fearlessly to express that opinion, and so long as he does so respectfully, I make no doubt but he will always be respectfully listened to,—for it is by an interchange of sentiment, and by private and public discussion, that the most important improvements are set on foot and effected. We have this evening heard many very valuable remarks upon agricultural matters generally, and particularly upon the properties of different kinds of manures,—some advocating bone manure, others nitrate of soda, and so on; and if you will give me leave, I will now take the liberty of troubling you with my opinion upon this subject. Nitrate of soda, I think, has not been in use long enough at present to prove its general utility, and therefore I would by all means give it a fair trial; but bone manure has proved itself, and we are all aware of the immense effects it has produced in this county as a top dressing for our pasture lands; but I think there is a field open for the further application of bones, which, if properly attended to, will effect a vast improvement in the cultivation of our clay land farms. At present the use of bones upon clay farms is principally confined to the pasture lands; but, in a few years, if they continue to be used as freely as they have hitherto been, the pasture lands will have been gone over, and as it appears we can be supplied with bones from abroad, at a remunerating price to the farmer, in addition to what are from time to time produced in this country, it becomes a subject of the deepest interest to consider what is the best way of turning this most valuable manure to the best account. I am quite aware that ours is a dairy county, and that cheese is, and I trust always will be, our staple commodity, but I see no reason why it may not be a corn growing as well as a cheese making county; and I feel convinced that the system I am about to take the liberty of recommending, would, if adopted, instead of robbing the cheese tub, be a great succour to it. The system I would take leave to recommend, applies mainly to clay land, and it is this—instead of manuring the mowing lands from the farm-yard, I would give them a good coat of bones, say from 2 tons to 50 cwt. to the statute acre, and this added to the condition the permanent mowing lands are in to begin with, I make no doubt would cause them to mow well for the next 7 or 8 years, and materially improve the quality of the hay. I would next recommend that the lands set apart for tillage should be thoroughly drained to take away the surface water, and that the farmer should be allowed to use his farm-yard manure (which would not then be wanted for his mowing) for arable purposes, either to be put upon the clover root, or for a green crop, or, indeed, in any other way that he might think most advisable. And if this plan were pursued, I have no hesitation in saying, that with a less tillage he would be able to grow more than double the quantity of both corn and straw than he does at present, and at all times have a change of tillage, and his land would always be in a situation to give him a good crop of either oats, wheat, or clover, or even a crop of Swede turnips if he thought proper to grow them. Under the present system we all know, that when a piece of clay land has undergone a course of tillage, it is obliged to be laid down (and often without even a top-dressing upon the clover root to com-

pensate it for what it has suffered,) and to lie dormant for 6 or 7 years till its time of punishment comes again, during which period it is absolutely unprofitable both to the tenant and the community at large; and I believe there are at this moment thousands of acres of land in this very county in a state that may be considered almost entirely out of cultivation, every acre of which, in my humble opinion, may be turned to good account. If the tillage lands were well under-drained and manured, the very poorest of our clay land, I make no doubt, would bring a crop of oats; whereas, according to the present system, there is a vast deal of it that the farmer dares not think of ploughing for a crop of oats, even after it has taken its five or six years' rest and refreshment, but it is actually ploughed up again for a summer fallow, thereby adding another year of positive expense to the five or six years of no return during its slumbers. When I have recommended some of the farmers with whom I came in contact to improve their dairy stock, their answer has invariably been, that their winter keep was not good enough for high bred cattle, and that, consequently, common hardy cows suited them best; but if the system I have presumed to recommend was adopted, the farmer, I think, might venture to possess himself of a better description of stock, as he would have clover for his horses to eat in the winter, and, consequently would have both better and a greater quantity of hay to give his cows, as well as some oats in the spring and calving time,—a luxury which, I am afraid, many stocks upon poor clay land farms are seldom permitted to enjoy; therefore, instead of the course of husbandry I am taking the liberty to recommend—treaching upon the dairy—I hope, I have satisfied you that it would, as I have observed before, be a great support to it. Gentlemen, when it is in the power of the farmer to bone his mowing lands himself, I would, as his friend, strongly recommend him to do so, instead of paying his landlord interest; but I am fully aware that there are many honest and industrious men who have no spare capital to employ in making any extensive improvements of this sort, and in these cases, I would most respectfully take leave to recommend their landlords to lend them a hand, by doing it for them; but, of course, instead of the landowner receiving 7 or 8 per cent., which is something like the rate of interest generally paid for bones when applied to pasture lands, I think he might reasonably require 10 or even 12 per cent., and while this rate of interest would amply remunerate the landlord, it would, at the same time, materially improve the condition of the tenant, and ultimately increase the value of the fee-simple of the freehold, to a very considerable extent. Gentlemen, I must beg pardon for having ventured to trespass so long upon your patience, and take leave to drink all your good healths, and the healths of those who may be most dear to you.

The CHAIRMAN then gave "the health of the Judges of the day." (*Cheers.*)

One of the JUDGES replied to the toast.—He said, if they had given general satisfaction, he was very proud of it, for to expect that satisfaction had been given to all parties was somewhat unreasonable. Every man would think his own stock the best, but the judges had endeavoured in their decisions to do their duty fairly and impartially. (*Cheers.*) Before sitting down he might be allowed to say, that he had been accustomed to agricultural pursuits throughout his life, and had invariably endeavoured to promote the true interests of the farmer. In some of those attempts he did not think he had been altogether unsuccessful. He felt convinced that the

interests of the farmers were strictly identified with those of the landowners, and he hoped that this would be mutually acknowledged. (*Hear.*) He admired Agricultural Societies, because they were the means of conveying useful information to the practical farmer; but such societies also required the co-operation of the landlords—and without their assistance, the farmer never would be enabled (as Mr. Woolf had on a former occasion expressed it,) to grow two blades of grass where one only grew before. There ought also to be such a confidence established between them as would convince the farmers that they were safe in making their improvements, and this could only be done by granting long leases. This system was adopted in South Lothian, and their worthy chairman had told them of the benefits resulting from it. There was much difference of opinion as to the best means of cultivating soil; but one thing was universally admitted, that draining was every where necessary before land could be made highly productive. Both clay and sand land required, and he thought it a question worthy of being taken into consideration of the gentlemen of the county whether it would not be advisable to employ some scientific person who really understood draining, and do that part of the business themselves. At present the landlords frequently gave tiles, but if they would do all the draining, and charge their tenants a sufficient per centage, he was certain the farms would be more permanently improved. There was another remark he had to make. Within the limits of this society every variety of soil presented itself, and consequently there was not the same chance for one farmer as another. The man who cultivated a cold wet stubborn soil, could never compete with him who cultivated a rich fertile soil, and therefore he did say, that as it was the former description of land which most needed improvement, regard should be particularly paid to that by the committee and other influential persons connected with the Society.

PRESTON AGRICULTURAL SOCIETY.

On Saturday, Oct. 3, the annual show of live stock, implements of husbandry, roots, &c., took place in the new cattle market, adjoining Mr. Pearson's, the Unicorn Inn, Moor Park; and was succeeded by a dinner at Mrs. Scott's, the Bull Inn.

The Judges of the stock were Mr. T. Benn, of Lowther Castle, Mr. Wilson, of Crackenthorpe, and Mr. Blackmoor, of Hammerton Hall, near Slaidburn.

About half-past three o'clock, a party of about seventy gentlemen sat down to an excellent dinner, at Mrs. Scott's, the Bull Inn. T. B. Crosse, Esq., the President of the society for the ensuing year, occupied the chair. He was supported on the right and left by J. W. Patten, Esq., M.P., J. N. Farington, Esq., Richard Snell, Esq., John Cunliffe, Esq., T. R. W. France, Esq., John Paley, senr., Esq., George Jackson, Esq., J. Lomax, Esq., R. E. Allison, Esq., John Cooper, Esq., Kingston Salisbury, Esq., R. Walsley, Esq., H. P. Fleetwood, Esq., James Fair, Esq., John Lord, Esq., Thomas Birchall, Esq., R. Park, Esq., R. Rothwell, Esq., the Rev. Gardner Baldwin, &c., &c. Mr. Barton F. Allen ably sustained the office of vice-chairman. In other parts of the room we observed Messrs. Almond, J. Clayton, J. Noble, Morrell, Cookson, Bannerman, &c., &c. The cloth having been removed, and the usual toasts drank,

The CHAIRMAN in proposing "the Preston Agricultural Society, and increased prosperity to it"—(*cheers*)—said it would naturally be expected that filling the situation which he did, he should offer some observations on the subject of agriculture. He regretted that his want of information on the subject, as a practical and experimental farmer, would prevent him from being of much service to them, as anything he might say would not be the result of his own personal experience. (*Hear, hear.*) There were, however, one or two propositions to which he might allude, which appeared so self-evident, so well established, and so rational, that it was only necessary for him to advert to rather than attempt to enlarge upon them. Agriculture might be believed to be divided into two great branches, the first of which was the cultivation of the soil so as to increase its productive properties by an improved system of tillage, and an improved system of cropping—(*cheers*)—and the other great branch into which he conceived agricultural improvement divided itself, was improvement in stock; and the reason for this was, that the farmer should produce an animal, which, with the same quantity, but perhaps a different quality of food, would produce in a given time, an equal if not a greater amount of profit. (*Cheers.*) To illustrate what he meant, he would say, in the language of the commercialists, that they should turn over their capital more frequently and have a quicker return. Supposing that upon three acres of land they could produce, by better cultivation, and by a better breed in stock, double or perhaps treble the return of income, it was quite clear that to the extent of their improved profits upon an average of years, they were not only benefitting themselves in that respect, but were laying a foundation for increased and increasing advantages. (*Cheers.*) He was happy to learn from the inspectors that the appearance of the farms which had been surveyed for the prizes of that day, presented an auspicious aspect. There was, he understood, a larger quantity of draining, and an increased quantity of green crops, especially of turnips; besides which they could not fail to observe a great improvement in the quality of stock—he meant to say improvement in the breeding enterprise of the district. He was glad also to learn, that since last year, there had been an accession of competitors for improvements in farming generally,—one of the most useful departments in the competition encouraged by these societies. (*Cheering.*) He might state, as a proposition which he believed was universally conceded, that one of the most essential requisites in the successful carrying forward of agricultural science, was drainage. (*Hear, hear.*) In the county of Lancaster the land was of a nature peculiarly requiring draining, and it was invariably found that the yield of produce was greater when land was efficiently and permanently drained. In fact, no suggestion had of late years received a more unanimous sanction than that important department of agriculture. He felt, therefore, bound to recommend, as strongly as he could, the adoption of the system. No one could travel over the country without being struck by the quantity of superfluous wet, of rushes, and other baneful growths, which were to be seen disfiguring the land in every direction, the consequences of not sufficiently dislodging water from the soil. Farmers were in the habit of putting lime and manures on these wet and sterile lands, but he was quite sure that if, instead of spending a pound in lime, they were to spend 15s. of it in drainage, they would reap double if not threefold the advantages, and that not for the present time

only, but permanently. (*Cheers.*) His own experience, though it was not extensive, assured him that improvements were always remunerated, and the return for agricultural enterprise was, generally speaking, as quick as it was certain. (*Cheers.*) The subsoil ploughing was a system of husbandry, which was in immediate connection with the meeting of that day, and which, he had understood, had produced the most beneficial effects wherever it had been brought into practice. He should, at a future period of the evening, be glad to hear the observations of any gentleman who had used this implement (and he believed there were such in the room,) and who could doubtless give useful information respecting it. (*Hear, hear.*) Another point to which he might allude was that of green cropping. There could be no doubt that green crops were most advantageous. Turnip husbandry, for instance, included among its benefits the best opportunity for rotation of crops, the production of excellent food for cattle, and the opportunity of effectually cleansing and weeding the land. It was gratifying to find, therefore, that turnip husbandry was increasing in this district, a change, which he trusted, would be of extensive operation.

Mr. BANNERMAN, the secretary, read over the following names of new subscribers.

John Wilson Patten, Esq., M.P., Bank Hall, Warrington; R. E. Alison, Esq., Charnock; J. Gardner, Esq., Sion Hill, Garstang; Alex. St. Clare, Esq., Joseph Bray, Esq., Samuel Horrocks, jun., Esq., John Baird, Esq., John Paley, Esq., John Cooper, Esq., Mr. Andrew Halliday, Mr. James Pearson, Preston; Kingston Salisbury, Esq., Liverpool; Sir Thomas Whitehead, Uplands; Rev. Robt. Hornby, M.A., Mr. George Kent, Mr. George Eastham, Walton-le-Dale; Rev. Mr. Hornby, St. Michaels; Mr. Burridge, Fleetwood; Mr. Richard Whittle, Penwortham; Mr. Jas. Melling, Fishwick; Mr. Henry Wilkinson, Chipping; Mr. Morrell, Leyland; Mr. Thomas Fisher, Layton; Mr. Robt. Dickinson, Poulton-le-Fylde.

Mr. PATTEN, M.P., rose to return thanks, and, on rising was received with great applause. He perfectly concurred with what had been said on the subject of draining. The draining prize at Liverpool the other day was given for thirty-six miles of drainage;—(*cheers*)—a proof that this department of agriculture was beginning to be appreciated, and an example which he sincerely trusted might be generally and universally adopted. He begged the company to believe, that so long as he was a member of the society, whether in his public or private capacity, he should use his best efforts for the prosperity and the welfare of this society in particular, and of the cause of agriculture generally. (The hon. member resumed his seat amidst loud cheering.)

REPORT OF THE PRESTON AGRICULTURAL SOCIETY, 1840.

MESSRS. WALKER AND FISHER, INSPECTORS.

"Having been appointed general inspectors for the Preston Agricultural Society, which comprises a great extent of country, and made up of various dispositions of land, a few remarks may be expected, from the situation we hold.

"The first and highest premium that came under the notice of the inspectors is for 'the best cultivated farms,' which have by far the greatest merit attached to them, if found worthy of the society's premiums. It is not similar to paying attention to a few acres for a green crop premium, but it embraces a range

of good management, connected on all hands with good farming.

Upon the premium farm in the first class, Mr. Richard Ball's, of Rossall Grange, a proper rotation of crops seems to be attended to. Nearly twenty acres of green crops, in drills, in good order, are growing upon it. Thirty-five acres of clover and grass seeds were sown the preceding year, and are in excellent order, part mown and part pastured. There has also been sown on this estate nearly fifty acres of wheat, peas, and barley, the present year, in drills; the corn drill having been used by the family on the farm, for more than thirty years. There is no ancient meadow or pasture upon it, but the land is constantly progressing, apparently, from green crops and tillages to corn crops and grass seeds.

"The second class farm;—Mr. Thomas Fisher, Layton. The merit in this consists of laying down eight acres of clover and grass seeds without a crop of corn in the preceding year, in a very handsome manner. Also, in considerable amount of well-manured green crops, top dressing of pastures, and also handsome amount and good clovers sown in the present year.

"The third class farm;—Mr. Richard Platt, of the Rose Whittles, in Leyland. The fences and ditches have been regulated in a handsome manner; small closes of land laid together; and swampy portions reclaimed; considerable amount of stone draining has been done; and there are very efficient tillages.

"Merit of the highest kind is due to Mr. Thomas Fleming, of Longbridge, for draining most efficiently and extensively; also with following up with very suitable and extensive tillages. The good effected on this farm is almost incalculable, whether taken in value to the landlord, or in substantial effect given to it for farming, the contrast is very striking between this and some adjoining land in an undrained state, well worthy the attention of the neighbourhood. The competition for the drill beans, and Swede turnips, has been particularly strong; for the former nine, and the latter fifteen competitors, in both of which there were a great majority of excellent crops.

"On the general stocks of cattle viewed upon the farms, the competition was not so very numerous, but the stocks very meritorious; and, as of necessity, there must be unsuccessful candidates, we can assure those in that class, the competition was extremely severe.

"On the general character of farming in the district, we beg to offer a few remarks on the dry, sandy, or loamy soils, the farming and knowledge of their properties seems pretty well understood. But it is on heavy wet soils, whether in corn or grass, or overflowing extents of country, that the farming interest is most suffering. It is not on one, but this is the triennial occasion, they have had to struggle with seasons of unexampled wetness and coldness, making the productions small, and materially injuring it in quality. Under these circumstances his expenses in husbandry are heavy; his prospects for the future, in unavoidable defective cultivations, very meagre; little or no remuneration for his outlays or capital employed; recent additional burthens in the county rates; all of which combined, almost threaten his existence as a respectable member, in the class in which it is desirable he should move. Now, as it is desirable both for the interests and character of farming that this should be remedied, so far as landlord and tenant can do it, it seems desirable that the relative proportions which each

ought to bear, be well understood. If, on the part of the farmer, he have his land on terms that there is scope for improvement, with industry, to set to work, and make the necessary improvements as early as possible. If on the other hand, he is cramped with higher rents than the land can bear, (which is almost always the case in wet and undrained soil,) we advise the proprietors to look into the matter, and render assistance in a liberal manner, if the cases seem to require it. And as it seems it will come to this, that undrained land will be well understood, and the last to obtain and keep reputable tenants, so it will be for their continued interests that an early application of it be effected. It would not alone be raising the farming character in the district, but it would be conferring a benefit on a well disposed body, viz., the agricultural labourers, who would hail with gratitude any improvements in their respective townships during the ensuing winter.

"We beg to add that these hints are given with the greatest deference, and, as we have only the welfare of the landlord and tenant, and the progress of improvement at heart, they will be received by all with the same spirit which emanates from us."

G. JACKSON, Esq., then rose to address the company on the subject of the subsoil plough. He could not, he was sorry to say, come before them as an experienced practical agriculturist; he had been brought up in a different line of life, and his early attentions had been devoted to commerce; he had only recently commenced as an agriculturist, and therefore could only presume to give his opinions rather as a theorist, than as the result of extensive personal experience. (*Cheers.*) He had expended his capital in land, and his first inquiry therefore was, how to make the best of it for himself and for his tenants. As to draining, he had signified to those who farmed under him that he would produce the necessary capital for making the requisite drainage, on condition of receiving five per cent for it, in addition to the rent. (*Cheers.*) Mr. J. then proceeded to enter into some details in reference to the plan he had pursued, and spoke to the following effect:—The land in which I have so far used the subsoil plough consists of a strong soil, from ten to eleven inches in depth, lying on a strong bed of rich clay. The land has been, in former years, frequently marled, and cropped with wheat and oats until exhausted; and, when it came into my possession, of little annual value. To restore it, I have drained it with stone, or tile and stone, taking care to fill up the drains with small stones, covered by an inverted sod to within an inch or two of the top of the clay. After this, an oat crop is taken, and the field ploughed early in November with the common plough (drawn by four horses), throwing a furrow eight or nine inches deep, and followed by the subsoil plough, loosening the earth five to six inches beneath the furrow of the first plough, without bringing the subsoil to the surface. The field is divided into "Lands" of seven to eight yards wide, on the first of which the common plough throws a furrow, returns, throwing another, to the place from which it started, and repeats this course until each "land," has been so traversed, when the horses are put to the subsoil plough, which follows in the furrows made by the first plough, and so on until the field is finished. (*Hear, hear.*) In conclusion, he could assure the company, he was quite persuaded, that by drainage in the first instance, and by the subsequent use of the subsoil plough, the land of this important agricultural district might be most extensively and permanently improved.—(*Loud cheers.*)

WRANGLE AND EAST LINCOLNSHIRE AGRICULTURAL SOCIETY.

On Tuesday October 6, the first anniversary of this society was celebrated in the village of Wrangle.

THE DINNER

took place in a spacious booth erected on part of the orchard of J. Rinder, Esq., the excellent Treasurer of the Society.

Shortly after 3 o'clock, the chair was taken by THOS. GEE, Esq. of Boston, supported on the right, by H. HANDLEY, Esq., M. P., the Rev. — Morley, Raithby, W. Loft, Esq., Trusthorpe, T. Broughton, Esq., J. Kirkham, Esq., Hagnaby, &c.; on the left, by the Rev. R. Wright, vicar of Wrangle, G. J. Heathcote, Esq., M. P., J. Wright, Esq., Witham Cottage, Rev. T. W. Boon, Friskney, J. Hewson, Esq., Laythorpe, G. Holland, Esq., Wigtoft, W. Garfit, Esq., Boston, &c. The vice-chair was filled by J. Rawson, Esq., Boston; and among the general company, which numbered nearly 250, we noticed Messrs. Fountain, Leek, H. Munk, Mastin, Jackson, &c. &c.—Grace having been said by the Vicar of Wrangle, and the customary toasts drank,

The CHAIRMAN proposed "The Members for the Southern Division of Lincolnshire." (*Applause.*)

G. J. HEATHCOTE, Esq., in returning thanks, expressed the pleasure with which he had received their summons to attend them that day, and assured them that if he could render any assistance to the agricultural interests, or to them, he would have been present, had it been ten times the distance. (*Applause.*) He ever came into this part of the county with lively feelings of pleasure: he had been connected with Lincolnshire for twenty years, and although time flew, his feelings of gratitude could never fly, when he remembered that his first connexion with the county commenced in these parts. (*Hear.*) He had had the misfortune to meet them on many occasions, under the most unfavourable circumstances to agriculture: the storm had now dispersed, and if there were still remaining some passing clouds upon their prospects, the intelligence, industry, and perseverance of the farmers would see them through it all. (*Applause.*) With regard to the epidemic that was raging so seriously among the cattle in many parts, he had communicated on the subject with the Secretary of the Royal Agricultural Society, who had referred him in answer to the printed directions, with which he did not doubt they were familiar; at the end of his letter, however, he (the Secretary) had stated, on the authority of a gentleman who had attended the boards, that a very simple cure was, the use of epsom salts, and abstaining from bleeding. (*Hear.*) Mr. Heathcote proceeded to allude to his recent visit to France, detailing the comparisons he had drawn between French and English agriculture, and the favourable nature of those comparisons to the farmers of this country. He continued: he was proud to bear testimony, to the great benefit of these Associations, in promoting agriculture—in strengthening the position of the farmer—and in rendering him as respected as he was respectable. (*Applause.*) He would conclude by expressing his complete devotion to the agricultural interests of this great land: he was bound to it by every feeling which can bind man to man, or man to his country; he was bound to it by his duty, being with his colleague, representatives of the most important agricultural district in the empire; he had passed the better part of his life among them; he was a farmer, he repre-

sented farmers, and he felt that as such he ought to know every process connected with their interests, from the passing of a law to the draining of a farrow. (*Applause.*) He was bound to the prosperity of agriculture—for all that he had came from the land; and, in addition to all these ties, he was bound to them by one still stronger—by gratitude—for he was certain that no one had ever received such kindness from an agricultural constituency as he had, and whatever were his faults, ingratitude was not one of them. (*Loud applause.*)

H. HANDLEY, Esq. M. P., on rising, was very cordially received. He concurred most fully (he said) with his hon. colleague in all he had set forth—in one respect only he differed from him, and that was, that after having been engaged for six months in the business of the legislature, he did not feel inclined to take up a spade and work knee-deep in a furrow for the remainder of the year. (*Laughter.*) He thanked the committee for the compliment they had paid him for offering him the presidency of the society for the first year, but congratulated them on their having placed it, after he had felt compelled to decline it, in hands better able to protect the interests of the society. They would bear with him while he referred to the operations of such societies as this; the strength—he could not say the infancy—of which they were met to celebrate. If they looked upon these societies only for the good results they conferred upon the occupants of the soil, they would take a very narrow view of the question. In all ages, and in the most civilized lands, where agriculture flourished, the arts flourished also: they were mutually connected by the strongest ties of interest. (*Hear.*) Mr. Adams had alluded to the improvement effected in waste lands in Scotland—he needed not to have travelled so far, for of all places which had been advantaged by agriculture, this district offered a most convincing testimony to the improvement produced by a careful cultivation of the soil. (*Hear.*) The increasing population, some samples of which they had had that evening (*laughter*), demanded increased means of support; and they would acknowledge how much had been effected towards that object in the district round them, when they recollected how short a time it was since their fens had only been inhabited by wild fowl, and their woods by rabbits, which now produced the food of man, and presented as cultivated a district as was to be found beneath the canopy of Heaven. How had this been effected? By the acquisition of science, in aid of skill and capital. The progress of engineering had relieved the fen country from water, and the same power had intersected the land with the rail-roads. materially increasing the facility of transit, and producing great advantage to every institution of the country (*hear.*) The chemist had brought them bones, by which they had expelled the rabbits, and now grew corn instead. This district was, in fact, a sort of model farm to all England, and their example had been followed at the extremities of Europe. As an instance of what had been the effect of their example, he would state, that in 1823, when the bones supplied by this country were found insufficient for their wants, they were imported from abroad: the declared value of the import was then 14,000*l.* per annum: in 1836, when the last return was made, the declared value had increased to 254,000*l.* (*Hear hear.*) As the population was so rapidly increasing, could they but continue, by some better application of manure, or new selection of seed, also to increase the growth of wheat a bushel an acre, the produce would be half-a-million of quarters per annum, quite food

enough for the population, which was said to increase at the rate of 1000 a day. If by the employment of improved implements, also, another half-bushel could be saved, it would be an additional fund for this increased demand. Certain it was, that while a beneficent Providence adds to the wealth of the nation in the shape of its population, it will also aid the endeavours of man to furnish sufficient for its supply. (*Applause.*) Nothing could tend more than such meetings as the present to promote so desirable an object—the interchange of ideas between experienced men—the examination of the comparative merits of animals exhibited—and (as had been well observed by the respected vicar) showing to the labourer that good character and conduct and integrity would not go unmarked by the British farmer. He would say to them, go on and prosper: he could never believe that such societies could be too thick, for the more heads that were employed in the great work, the more likely were they speedily to bring it to a happy conclusion. (*Loud applause.*)

J. RAWSON, Esq., proposed—"The Secretaries."

Mr. HARRISON acknowledged the compliment for himself and colleagues, assuring the company that the success which had attended their efforts had quite surpassed their most sanguine expectations, as they had started seven months ago with a fund of only 9s.—(*Applause.*)

PETERBORO' AGRICULTURAL SOCIETY.

(ABRIDGED FROM THE LINCOLNSHIRE HERALD.)

The anniversary meeting of this society took place on Thursday Oct. 1, and Saturday Oct. 3, and passed off in a manner highly gratifying to its managers.

The ploughing took place on Thursday the 1st inst., on a piece of Fen land in Thorney. The number of ploughs entered was considerable, and the work generally well performed. The judges in this department were Messrs. W. E. Griffin, Werrington, Edw. Carr, Warmington, and J. Tebbutt, Upton.

The judges of stock, &c. were Messrs. R. T. Mosely, Somersham, R. Smith, Burley, and R. Mawby, Spalding.

THE DINNER.

Shortly after 3 o'clock, a numerous and highly respectable party of gentlemen interested in agricultural pursuits, sat down to dinner, at the Angel Inn. The chair was filled by Dr. Strong, supported on the right by Tycho Wing, Esq., the Rev. J. Wing, J. Herne, Esq., &c., on the left by Lord George Gordon, Col. Hardy, — Simpson, Esq., &c. The vice-chair was occupied by R. W. Laxton, Esq., and among the company were Messrs. Bullen, Edmunds, Worsop, Lawrance, Fullard, and Dawson (Ingthorpe) were also present.

The customary toasts having been drank, and responded to, the rev. chairman proposed "The Judges."

Mr. ROBERT SMITH, of Burley, returned thanks for himself and colleagues in an appropriate and sensible speech, declaring that however difficult had been the duties of their office, they had entered upon them with a straightforward determination of doing their duty; and he was happy to say that they had quitted the show-yard with the unanimous feeling that they could not reflect, in any one instance, upon having made an erroneous award. With respect to

the exhibition of stock generally, he would say that, bearing in mind the prevailing epidemic, which had kept away many animals entered, it would do credit to any society in England—in the class for oxen, in particular, the animal which had taken the prize would not disgrace the Smithfield show, if it should be entered (*Hear, hear*). Although small, they had never seen a better exhibition of extra stock. He concluded by explaining the circumstances of the division of the prize for implements—and which had been owing to the great difficulty they had experienced in selecting any one implement from the many choice specimens exhibited. (*Hear*).

Col. HARDY proposed the health of Tycho Wing, Esq. (*Great applause*).

Mr. WING said that he had not anticipated having to appear before them a second time that evening. He felt a warm interest in the success of such associations, whose efforts tended to promote good farming throughout the kingdom. They who ventured to question the utility of these societies, must be bigots indeed. It had been remarked by a distinguished speaker at the last Cambridge Meeting, that "no country was more safe from foreign aggression than that which was at ease within itself as to the means of supplying its population with food." Mr. Wing proceeded to notice certain remarks which had been made by Professor Buckland at Cambridge, and which he thought were not characterised by the care which should distinguish so eminent a philosopher. Alluding to geology, the Professor had stated that geologists had discovered that the formation which produced the celebrated wheat at Burwell, near Cambridge, was to be traced within narrow limits from the eastern to the western parts of the kingdom: and that any farmer who by the assistance of a geologist could discover this stratum on his land, would be enabled to grow wheat of the same quality. He (Mr. Wing) need not inform them that this depended on a great variety of circumstances,—on what other substances were mixed in the soil, on the elevation, the aspect, the dryness, or humidity of the climate, and so forth: and he thought the learned professor had jumped at rather too hasty a conclusion. Professor Buckland had also stated, as one proof of the utility of the subsoil plough, that it had enabled wheat to grow with a root five or six feet deep. It happened that he (Mr. Wing) knew an instance, (probably the one alluded to by the Professor,) in which this had occurred; it happened in a gravel pit, when the earth having been removed, the wheat had shot its roots downward; but if they were to conclude, from the testimony of the learned Professor, that wheat therefore required a depth of six feet, he feared it would be long before their crops came to anything like perfection (*Hear*). The real utility of the subsoil plough was, in his opinion, after the land had been thoroughly drained, to break up the under soil, by which fissures will be formed; these would be penetrated by the rain, and would open the whole mass to the action of the sun, the wind, and the frost: the soil would thereby be mellowed, the heavier parts would subside, and the lighter would remain at the top, more finely pulverised, and better suited for the growth of corn: the improvement was permanent but gradual, not sudden. In another instance also, the Professor had been in error, with respect to the growth of Italian rye-grass (*Hear*). After stating that it grew well on soils in parts of certain counties which he enumerated, he proceeded to inform them that a geologist by examining the soil, could tell at once where it might be grown and where not. Now, he believed it was well known that Italian rye-grass was very easy of propagation; whether it was ad-

visible to grow it or not was another consideration (*hear and laughter*)—but few farmers would require the aid of a geologist in such a matter as this. He did not in the least despise the contributions of science to agriculture; but he felt that science supplied the *raw material*, which must be tested by the experience of the farmer. They might, it was true, receive much light from the labours of the philosopher—but the practical knowledge of the agriculturists must always be taken into the account (*Hear*). He should always consider it his duty to support such societies as the present—because he was convinced that they must promote not only good farming throughout the kingdom, but good fellowship among themselves (*Applause*).

The remaining toasts were “the Stewards,” “the Secretary,” (acknowledged by Mr. Lawrance), &c., &c.

NORTHUMBERLAND AGRICULTURAL MEETING,

HELD AT ALNWICK, OCTOBER 1.

The dinner took place in a spacious pavilion, which had been erected for the occasion, in the Malting Yard, in the Green Bat, belonging to Mr. Atkinson, of the Queen's Head Inn, who furnished the dinner. The Hon. H. T. Liddell presided, and was supported on his right and left by Lord Howick, William Lawson, Esq., High Sheriff of Northumberland, the Rev. Mr. Percy, of Warkworth, the Hon. H. Grey, Capt. Frederick Grey, R.N., Charles Bosanquet, Esq., of Rock, George Burdon, Esq., of Felton, Capt. Smith, Alnwick, — Askew, Esq., Glenriddle, H. Liddell, jun., Esq., (one of the chairman's sons), the Rev. L. S. Orde, Alnwick, rev. Mr. Burrell, Sir Edward Baker, William Orde, of Nunsthorpe, Esq., William Roddam, of Roddam, Esq., Colonel Stanhope, of the Guards.—At the table of the Vice-chairman, Ralph Carr, Esq., of Hedgeley, were—the Rev. Mr. Rooke, of Embleton, Hugh Moises, Esq., of Amble, Adam Atkinson, Esq., of Lorbottle, — Blagden, Esq., Ford Castle; William Burrell, Esq., Broompark, Thomas Smith, Esq., Togston, D. Robertson, of Ladykirk, Major Clutterbuck, Warkworth, J. Boag, Esq., of Warton, Rev. Mr. Carr, and John Ridey, of Park-end, Esq. The customary toasts having been given and responded to,

The CHAIRMAN said, he was sure the company would drink this toast with the more satisfaction at present because their feelings would be uncontrolled by Mr. Grey's presence. He was unavoidably absent, but he had transmitted a paper to the Secretary, connected with some agricultural experiments, which Mr. Sinclair would be good enough to read to them, after they had drunk Mr. Grey's health. The toast was drunk with three times three.

Mr. SINCLAIR then read the following paper:—

EXPERIMENT UPON THE APPLICATION OF NITRATE OF SODA AND GYPSUM TO GRASS LAND.

The plot of land upon which the experiment was tried, is of good gravelly loam, in three years old grass, and well covered with such perennial plants as are usually sown for pasture, viz., white clover, trefoil grass, and timothy, but without red clover, which probably may account for the failure of the gypsum, which has been proved to be more efficacious in promoting the growth of that blade than any other plant.

The plot of land consisted of four acres, laid in

ridges of equal size. On the 18th of April, each alternate ridge was sown with nitrate of soda at the rate of 1 cwt. per acre. Some of the remaining ridges were sown with gypsum at the rate of 10 bushels per acre. One with both nitrate and gypsum, and 11 without anything. Great pains were taken in cutting and making the hay, to keep the produce of the ridges selected for the experiment, perfectly distinct. The hay on each was carefully weighed when put into pike, and the result was as under.

No. 1. 112 square yards, without any manure, produced 9st. 4lb. of hay, equal to 2 tons 81 stone per acre.

No. 2. 112 square yards, to which 10 bushels per acre of gypsum had been applied, produced exactly the same quantity, so that no benefit arose from the gypsum.

No. 3. 112 square yards, to which nitrate of soda was applied on the 18th of April, at the rate of 1 cwt. per acre, produced 14st. 7lb. of hay, equal to 3 tons 146 stone per acre, being an increase of 1 ton 65st. over Nos. 1 and 2.

No. 4. 112 square yards, to which both nitrate and gypsum were applied in the above-named quantities, produced 14st., equal to 4 tons 125st. per acre, being 21 stone per acre less than the produce from nitrate alone.

The cost of 1 cwt. of nitrate of soda, brought to the field, was 2s., and the increased value of the hay produced by it was on the field from 4l. to 5l., besides which at this (Sept. 26), the fog or aftermath of the land to which the nitrate was applied, is much better than the other.

I applied the same manures to alternate ridges of different kinds of grain, but the crops being strong and the weather wet, the corn was so much lodged and twisted, as to make it difficult to keep the produce of each quite distinct, so as to come to a correct and satisfactory conclusion. Nor can the experiment be so effective as if made upon thinner and lighter crops. I intend, however, to prosecute a course of such experiments, as it would be dangerous to decide upon the results of one particular season and one description of crop and soil; and it will, at all times, give me pleasure to communicate anything likely to be useful to the public, through the medium of the Northumberland Agricultural Society.

Dilston, 26th Sept., 1840.

JOHN GREY.

To Godfrey Sinclair, Esq.

RICHMOND AGRICULTURAL ASSOCIATION.

The fifth annual meeting of this association was held at Richmond, and in the quality of the stock shown, fully equalled, as in the quantity, it surpassed any of its predecessors.

At three o'clock precisely, a party of upwards of eighty gentlemen sat down to a most excellent dinner, provided by Mr. Hills, at King's Head Inn. In the absence of the Earl of Zetland, the noble president of the Society, the chair was most ably filled by R. M. Jaques, Esq., of St. Trinians, the senior vice-president, who was supported by the following, among other gentlemen—Major Healy, John Booth, Esq., Edward Booth, Esq., John Wharton, Esq., Wm. Armitage, Esq., Francis Morley, Esq., George Gilpin, Esq., John Colling, Esq., Rev. W. F. Wharton, John Wood, Esq., of Kimblesworth, Robert Harrison, Esq., of Lindrick, and John Parring-

ton, jun., Esq., of Marton. The judges of the show — J. Robinson, Esq., — Wiley, Esq., of Brandsby, T. Masterman, Esq., Little Danby, and Messrs. Smurthwaite, Severs, Carter, James Bell, Wetherell, of Durham, Ottiwell Tomlin, the acting secretary; Lax, of Darlington, W. Gill, and Thomas Bradley, Sowerby. Thomas Charge, Esq., the other vice-president, took the vice-chair, and was supported by John Harland, Esq., Thomas Lax, Esq., Captain Hogg, Seymour Deighton, Esq., William Lister, Esq., John Barker, Esq., of Healaugh, Messrs. Rolling, Outhwaite, Whitelock, Wade, Watson, and Hutchinson.

PRIZES FOR CATTLE.

CLASS 1. For the best short-horned bull, of two years' old and upwards 5*l.*, Mr. W. Raine; for the second 2*l.*, R. M. Jaques, Esq., four competitors.

2. For the best yearling bull 5*l.*, R. M. Jaques, Esq.; for the second 2*l.*, Mr. Sowerby, jun., three competitors.

3. For the best two years old fat steer 3*l.*, the Right Hon. the Earl of Zetland.

4. For the best cow that has had a calf since 1st Jan. last 3*l.*, John Booth Esq.; for the second 2*l.*, R. M. Jaques, Esq., four competitors.

5. For the best two years old heifer in calf 3*l.*, the Right Hon. the Earl of Zetland; for the second 1*l.*, Mr. Wm. Pybus.

6. For the best yearling heifer 3*l.*, John Booth, Esq.; for the second 1*l.*, Mr. Wm. Raine, four competitors.

7. For the best mare for breeding horses for the field 3*l.*, Mr. Layton, Rokeby, nine competitors.

8. For the best mare for breeding coach horses 3*l.*, Mr. Rd. Jaques, four competitors.

9. For the best mare for breeding cart horses 3*l.*, Mr. Wm. Middleton, seven competitors.

10. For the best aged Leicester tup 5*l.*, Mr. Rd. Outhwaite; for the second 2*l.*, Mr. Wm. Allison, four competitors.

11. For the best shearling Leicester tup 5*l.*, Mr. Rd. Outhwaite; for the second 2*l.*, Mr. Thos. Allison, seven competitors.

12. For the best pen of five shearling wethers 3*l.*, Mr. Cuthbert Watson; for the second 1*l.*, the Earl of Zetland.

13. For the best boar 2*l.*, Mr. Severs.

14. For the best breeding sow 1*l.*, Mr. Cundale, of Atley Field, four competitors.

The usual toasts having been drank,

The CHAIRMAN said he had great pleasure in proposing the healths of the three gentlemen who had favoured them with their attendance as judges on this occasion. He was quite sure that their decisions had given, though quite naturally not universal, but certainly very great satisfaction.—"The Judges." (Applause)

Mr. WOOD returned thanks on behalf of himself and his colleagues, and said they were most happy to give their services to an association which produced such an excellent show of stock as this did.

The CHAIRMAN gave "The Successful Candidates."

Mr. BOOTH returned thanks.

Mr. SEYMOUR DEIGHTON acknowledged the toast of the unsuccessful candidates.

Major HEALY rose and said that the toast he was about to propose would, he was quite sure, be responded to with great pleasure by all present, for they might well be proud of a young man who had taken so distinguished a lead in agricultural pursuits as their worthy chairman, Mr. Rd. Jaques—that this toast at least must be drank with all the

honours. (*Drank with considerably more than three times three.*)

The CHAIRMAN returned thanks for the very kind manner in which his health had been drank. He said that the pursuit of agriculture was one which he had indeed taken up most warmly, both as regards the breeding of stock and the cultivation of the soil, convinced that there was no pursuit more noble, nor one in which the prosperity of this district especially so much depended. He had great satisfaction in seeing that notwithstanding the small amount of premiums offered for competition at this meeting, compared with others of the same nature in the neighbourhood, they still had a show so good both in quality and quantity, as the one they had that day witnessed. He hoped, however, they should be able another year to offer prizes which would make it better worth the while of breeders to send their stock. He intended offering two premiums at the next meeting for stock, the property of a class of individuals among whom it was very desirable that the spirit of agricultural improvement should be encouraged. Hitherto he feared they had been deterred from exhibiting their cattle by the small amounts of premiums, and the greater wealth of the persons who were certain to be their rivals. The premiums he intended to offer were, 5*l.* for the best cow, the property of a farmer, being a tenant at less than 500*l.* a year rent; and 5*l.* for the best two year old heifer, belonging to the same class of persons. (*Intense applause*). He would now propose to them a toast, the health of a body of gentlemen to whom the society had for four years been indebted for a very handsome donation; he had heard they intended discontinuing it, on the ground of having abolished the market tolls; he hoped, however, they would think better of it; he was sorry he could not see any member of the body to whom he alluded, present at that table, to give the society any information of their intentions: at all events the society could not but be grateful to them for their past favours—"The Corporation of Richmond."

Mr. BOOTH begged to propose the health of a gentleman well known and universally esteemed as an eminent agriculturist—one whose decisions and judgment on such matters were received with deference, not by the Richmond Agricultural Association alone, but also by the Yorkshire, the English, and the Highland Societies.—He might term him the father of agriculture,—need he say he meant Mr. Charge. (*Drank with great cheers.*) Mr. Charge shortly returned thanks. Many other toasts were drank, and the party did not separate until a late hour.

On the whole this meeting has succeeded better than its best supporters could have anticipated; and from the premiums and donations offered by private individuals (several being announced at the dinner), greater success may still be argued for the future. It was also determined forthwith to solicit from the landowners in the neighbourhood, contributions in aid of its funds, in order to carry out more fully the benefits that should accrue from societies of this nature, and from the locality, and the disposition evinced, connected with many other favouring circumstances, there can be little doubt but the appeal will be satisfactorily responded to. An experiment of some importance in the result is in process of trial this season, in a field of six acres, in the occupation of R. M. Jaques, Esq., as to the relative merits of several of the new varieties of wheat, the seed procured from Messrs. Gibbs, to be sown at various distances—one of the modes of sowing about which there are more contradictory statements than any other.

GREAT CATTLE SHOW

OF THE

HIGHLAND & AGRICULTURAL SOCIETY
OF SCOTLAND.

On Wednesday evening, Oct. 7, the dinner of the Highland Society's Committee was held in the County Rooms, and attended by betwixt 300 and 400 members of committee and their friends. The company assembled at six o'clock. The Earl of Aberdeen, the President of the Committee, was in the chair, supported on the right by the Lord Provost of Aberdeen, the Earl of Bathurst, Lord Saltoun, Capt. Gordon, M.P., Major Duff, &c., &c. On his left were the Duke of Richmond, the Marquis of Tweeddale, the Earl of Traquair, the Viscount Arbutnot, Lord Claud Hamilton, Mr. Bannerman, M.P., Sir Robert Gordon, and J. E. Dennison, M.P. The croupiers were Mr. Grant of Tillyfour, the Convener of the county; Mr. Barclay Allardyce of Ury; and Mr. Boswell of Kingcausie. Among the gentlemen present we observed—

Sir John Forbes of Craigievar, Bart.; Sir John Stuart Forbes of Fettercairn and Pittsligo, Bart.; Sir Francis A. Mackenzie of Gairloch, Bart.; Sir Chas. Bannerman of Crimonmogate, Bart.; Sir John Muir Mackenzie of Delvin, Bart.; Major General Sir Alexander Leith of Freefield, K.C.B.; Alexander Bannerman, Esq., M.P.; J. Dennison, Esq., M.P.; Colonel Fraser of Castle Fraser; Colonel Gordon of Park, Convener of the county of Banff; Colonel Turner of Menie; Colonel Dalgarno, H.E.I.C.; Colonel Le Couteur, from Jersey; Colonel Fraser of Balmakewan; Captain Hope Johnstone; Captain Dalrymple, Westhall; Captain Thomas Shepherd, H.E.I.C.; Captain Anderson, Rural Police; Sheriff Murray of Aberdeenshire; Sheriff Douglass of Kincardineshire; Sheriff Currie of Banffshire; Sheriff Lumaden of Sutherlandsire; Messrs. Abercromby of Glasshaugh; Aitken of Auchintoul; Jopp Seggat; Alexander Johnston, W.S.; James Shepherd, W.S.; Henry Patterson, banker; Alexander Anderson, Advocate; Alexander Webster, Advocate; James Brebner, Advocate; Patrick Bannerman, Advocate; William Adam, Advocate; Provost Brown; Bailie Gray Peterhead; C. Hillyard, Esq., President of the Northamptonshire Society; Humphrey Gibbs, Esq., Secretary of the Smithfield Club; the Deputation from the Royal Agricultural Society of England; Dr. Hamel, a gentleman from Russia, who is travelling in this country for the purpose of collecting agricultural information; Mr. Drummond of Aberuchill; Mr. M'Donald of Craigree; R. Stewart, Esq. of Ardvoirlich; Mr. Stewart of Glenbuckie; Mr. Colquhoun, Clathick; Mr. Smith of Deanstoun; Major Cumming Bruce; Colonel Paterson; Sheriff Horne, of East Lothian; Mr. Gordon of Abergeldie; Captain Hunter of Auchterarder; Mr. Hunter of Thurston, and Captain Hunter his brother, &c., &c.

After the removal of the cloth, the usual loyal toasts having been given,

The Earl of Aberdeen said it had been intimated to him that, at this meeting, certain questions, interesting and important to the agriculturist, shall be made the subject of short practical discussion. Different gentlemen have kindly undertaken to communicate information to the meeting in the form of essays, which was that form best calculated to throw lights on such subjects. It was only by free discussion that they could arrive at light on these or any other subjects. In the discussion, he trusted that he need not remind them that their only object should

be, not the achievement of victory, but the attainment of good. He understood that Mr. Walker, land surveyor, had promised to read an essay on the rotation of cropping in the four counties.

Mr. WALKER, then rose and read the following essay:—My Lord,—The subject which I have the honour of bringing before your lordship and the present company for discussion, this evening, is one of considerable importance both to landlord and tenant. I only wish it had devolved upon some one, of whom I see many present, far more competent to do justice to it than I am. Having had no information of it until late last night, I felt very reluctant to undertake it, but have done so with the fullest confidence of meeting the indulgence of this company. The subject referred to is the rotation of cropping most suitable for the various soils of the four counties more intimately connected with the object of this meeting. Before entering upon the subject of rotation, it will be necessary to give a brief description or classification of the various soils which more generally prevail in this and the adjoining counties. These may be divided into five or six classes, namely

—1. The strong heavy clay along the coast, and in some places in the interior. 2. The heavy loam, or alluvial soils. 3. Light loam, comprehending the old infield lands. 4. Gravelly loam, with an open porous subsoil. 5. Thin muirish soil, incumbent on clay, or having a retentive subsoil. 6. Poor wet clays having a retentive subsoil. First—Strong heavy clay. Along the coast, and in a few places in the interior of the country, where the climate is favourable for the growth of beans and other leguminous crops, the rotation generally followed is a six-course shift, viz.—first, grass; second, oats; third, beans and peas; fourth, wheat; fifth, fallow or green crop; sixth, barley, with grass seeds. This, while the price of grain continues high, is perhaps as profitable a course as can be followed; but it must be land of the first quality to continue long under this course of cropping. Second—Heavy loams, or alluvial soils. Land of this description is perhaps the best and most valuable in the four counties, and may be managed under any rotation which land is worked upon, under the present improved system of agriculture. The four-course shift is, upon the whole, to be preferred, viz.—grass, oats, turnips, barley; or, if the climate is suitable, beans and wheat may be introduced; but in many districts in this country it is not thought expedient, even on the finest soils of this description, to cultivate beans or wheat, as, for want of climate, these grains seldom come to perfection. Third—The third class consists of light loam, or old infield. This, provincially, is denominated turnip and grass soil. Experience has now fully proved that the best rotation for land of this quality is a six-course shift, viz.—three years in grass (all depastured by cattle or sheep); one grain crop, after breaking up from grass; then turnips, a proportion of which should be eaten off by sheep where the climate and situation will permit; and the sixth year, barley or oats, sown down with grass seeds. In many places of this county and those adjoining, land of the quality and description now referred to is still worked under a seven-course shift, which differs only from a six in this respect, that two grain crops are taken in succession, after breaking up from lea; but this system cannot be recommended, and ought as speedily as possible, to be given up, and a six-course substituted. Since the introduction on so large a scale, of bone dust, as a manure for raising turnips, and the facilities which the farmer now has of disposing of his fat stock, many of the best agricul-

turists in these districts are turning their attention more to the cultivation of grass and turnips, and, in place of the three years, as suggested in the above rotation, allow their land to lie four or five years in grass, and when broken up take only one grain crop, being now fully satisfied that their land will be more easily prepared for the succeeding crop of turnips, and with much less risk of a failure in that valuable and important crop. *Fourth*—The fourth class of soils is gravelly loam—what is locally called sharp land—suitable for grass and turnips. There is now, I believe, no longer a doubt among the best and most intelligent agriculturists of this district that the six-course shift is the one best adapted for land of this quality—it being always considered beneficial to let the land remain in grass a year or two more, if, by so doing, the rotation is not otherwise disturbed. *Sixth*—The last class named is the poor, thin clays. This is, perhaps, the most unpromising and unproductive of all soils. No doubt the introduction of frequent or parallel drains will do much towards the amelioration of these soils; but the expense is often so great that tenants holding under leases of nineteen years' endurance are unwilling to embark so large a portion of their capital in what appears to them a hazardous enterprise. Without thorough draining this soil, no particular rotation can be prescribed for it. Under all circumstances, perhaps a five-course might prove the best and most advantageous. In order, therefore, to improve the country, and this description of soil in particular, I feel confident that the landlords of these counties would find it much for their interest to give the greatest encouragement to their tenantry in carrying into effect this system of draining. The question under consideration is one as to which differences of opinion must, no doubt exist; but, in conclusion, I have to express my regret that the time afforded me for writing out my sentiments was so limited as to render it hardly possible for one to do justice to a subject the importance of which all agriculturists will admit. [Mr. Walker's essay was received with cheers. At its conclusion, the Duke of Richmond's piper, a stalwart highlander, in the garb of his native district, entered the room, and played several old Scotch airs in very superior style.]

The Earl of ABERDEEN said that at all meetings of this nature, whether public or private, the toast he was about to propose was always drunk—"The Highland and Agricultural Society of Scotland." The noble Earl then said he should now call upon Mr. Boswell of Kingcausie, who he understood would favour the company with some remarks upon the necessity and advantage of a more general combination of science with agriculture, the deficiency of a scientific education for farmers, and the means of obtaining it.

Mr. BOSWELL then read the following essay:—My Lord,—that there has been, of late years, a great increase in the public mind of the wish to combine science with agriculture, there cannot be a doubt, nay, that wish is every day growing stronger and stronger; and it is equally true that there is a lamentable destitution as to the means of procuring such knowledge. *It is true* we have in the country plenty of good practical men, and in the towns there is no lack of men of science, but the combination is very rare. And for a young man to acquire such knowledge, is a matter of much difficulty, accompanied with great pecuniary loss, not to speak of valuable time thrown away, by first attending lectures in a town, and then learning the practical part in the country; and even this is not easily

managed, at a rate far above the funds at the disposal of the great mass of the people. Now allow me to endeavour to show you that the union of science with practice is most desirable, that it is high time to set about procuring the means of such union, and that nothing appears to me to be easier than to put such means within the reach of all who wish to avail themselves of it. In days long gone by—the palmy days of the wicked Tories—they used to be taxed with a wish to keep the people in ignorance. That was *never* my creed. I have ever been a great advocate for our grand parochial system: I have ever been for giving the people education, provided it was a sound religious one. I say provided it was a sound religious one, and I say so because I believe in the Bible, because I read there that God rules in heaven and on earth, that he alone can bless our endeavours or hold our puny efforts in derision; in a word, that he is a buckler to all who trust in him. But happily the Highland Society has long ago formed an amalgam of all political creeds; and I feel assured that no such sentiment, worthy only of the dark ages, is to be found amongst us. It is pleasant to think that, as members of the Highland Society, we stand firm as brethren, like true sons of old Scotia, hand in hand and shoulder to shoulder, for the improvement of agriculture and the good of our native land. But, while we cannot for a moment allow the antiquated doctrine of keeping our agricultural population in a state of ignorance, while we scout the idea of having our farmers ignorant as serfs, or our peasants no better than Hill Coolies, do not mistake me that I would be a backer of a trumpery system of teaching the lower orders to garble hard words, or to render them objects of ridicule, from the continual misnomer of names, the meaning of which they could never be taught fully to comprehend. There is no occasion that men should dive into the mysteries of the French chemists, and yet they may be taught—ay, and with advantage to themselves—that there are such things as alkalis and acids—that the air we breathe is composed of several gases, and that such and such combinations of different matters will produce substances fitted for the food of plants. Again, in botany, it is by no means necessary that our agriculturists should reach the celebrity of a Smith or a Hooker, or that they should waste their time in the contemplation of the cryptogamic flora of our mountain sides. There is no occasion for employing the aid of a solar microscope to teach us that plants, which botanists term synganous, have the power, at a certain stage of their existence, of perfecting their seeds after they are cut down; and that the thistle and common ragweed are amongst the number. And again, need a man be an Archimedes to know all the useful truths of the power of the lever and screw? And that all this knowledge is much required, we need only look at the mistake men—*practical men*—fall into, such as putting rape-cake for a crop where no moisture is likely to make it into a soluble state, while bones are placed in wet situations, where a little chemical knowledge would tell them they could not decompose. Turn to the ignorance of botany. Look to men putting themselves to charges to cut down weeds at a time when they can as well perfect the seeds as if they had not been touched. In mechanics, look at the ill-constructed thrashing-mills, the friction in badly-made axles, and a thousand other things, which a very slight acquaintance with natural philosophy would enable the farmer to put to rights. I should grow tedious did I enumerate all the mistakes I have seen perpetrated through ignorance of the simplest principles of science—in none

more than in the department of botany. We should laugh in common life at any man, or set of men, dealing in any article, and yet not knowing what it was. But what do we see in agriculture? I know many men who pay heavy accounts to Messrs. Gibbs or Lawson, and yet have not the slightest idea of what it is they have bought and paid for. Sometimes such seeds are sent from London, to the care of a factor, or land-steward, to get a fair trial, as it is called. But how can these men give such seeds a fair trial? They read on the ticket which their employer has sent, it may be crested-dogtail, or cocksfoot, or Anthony's grass; but, when it springs, they know no more than the man in the moon whether it be dogs' crests, or dogs' tails, cocks' feet, or hens' feet, Timothy's grass, or Anthony's grass. That it is high time to set about procuring the means of information, for such as thirst for it, must be self-evident to all. If proof were wanting, it can be had in the daily lament of our young farmers and our grieves, of the lack of scientific information. I could not tell how many men have said to me, "I greatly feel my want of chemistry," "my want of botany," and the like; while numbers have declared their wish to go anywhere, if at a reasonable rate they could procure such information. Thus, we see we have arrived at that state of civilization when there is a call for some school, of such sort as may give agriculturists an opportunity of acquiring scientific knowledge. We find among savage nations there is no such want—the New Zealander seeks only to satiate his appetite, and his revenge, at the same moment, on the body of his unfortunate enemy, while the inhabitant of Tasmania, still lower in the grade of human beings, desires only to fill his nether man with part of a kangaroo, or a few maggots from a rotten tree, and cares not to stuff his cranium with theories of the white intruder; and it is only when civilization has proceeded a great way, and a dense manufacturing population has made heavy demands on the productiveness of the soil, that it becomes necessary to call in the aid of science, the demand for food giving the stimulus to grow it. How, then, is this to be managed? I answer, let the Highland Society lend all their influence and their countenance to the establishment of an agricultural college and experimental farm! Oh, some will say there is nothing new in that, the idea of an experimental farm has been often mooted, but it won't answer. I admit it is not new, it has been mooted, but by whom? and how? I know that the subject has been broached by men, high as regards both talent and patriotism, and they have not been listened to; but I will tell you how that has happened. No sooner was the plan brought forward hitherto, than it has been caught up and marred by wild schemers and theorists—men in whom the agricultural world had no confidence—who, forming to themselves the *beau idéal* of an experimental farm, talked of things they knew nothing of, and which could not be carried out in practice. These men wished to rent the farm from the laird of Utopia, it was to be situated in Arcadia, or the vale of Tempe, or in some delightful place one has often heard of, but no one has ever seen. The buildings were to be splendid! Clerks were to be engaged as men of business, to buy quills by the quarter of hundred, and if that was not found to be enough, by half hundreds. These men were to be instructed to weigh and measure everything once a week, and to record, to the infinitesimal part of an ounce, any change that might take place on the matters under experiment. Great care was to be taken that these men were constantly dressed in surtouts of the finest persons' grey, and

were never to use any penknives that had not mother-of-pearl handles. The dairy-maids were to be selected from the best looking that could be found—they were to be instructed to sing *Ranz de vache*, and other pastoral ditties, in the execution of their duty—they were to have their hair constantly in good strong curl, and to wear pink ribbons; while every ploughman was to be provided with at least one pair of dancing pumps and silk stockings, that he might appear in a proper manner at the harvest-home ball, on which delightful and festive occasion the spacious granary (having been previously emptied by the horses and poultry) would be tastefully done up with appropriate devices of Ceres, each pouring forth plenty from a cornucopia. Let us away with such stuff and childish nonsense. I would have a plain, not very large farm, say 300 to 400 acres, situated in a good locality (perhaps near Montrose or Perth); the buildings to be of the plainest sort—no paid clerks. Fillenberg has long ago shown us that, at Hofwill, all the work could be done for the instruction be got within the walls of the institution; and why not in Scotland? I would have the unavoidable expense defrayed by the premium or fees paid by the wealthier class of students, who would not be required to perform manual labour; and, to conclude, I would have it set about quickly, not hung up like a suit in Chancery, to be talked of, but never decided upon; and if it did not support itself after being fairly set agoing, I would advise to sublet (as it is called) the farm, and give up the concern, certain that there either was "rotteness in Denmark," as to the management of the seminary, or that we had deceived ourselves, and that the public wished for nothing of the sort.

The Earl of ABERDEEN proposed the health of a nobleman who had officiated as President of the Society, and who had desired him to apologise for his absence on account of the delicate state of his health, and the fatigue he would have to undergo to-morrow. He gave the "Health of the Duke of Sutherland."

Sir FRANCIS MACKENZIE said that he cordially agreed to the propositions made by Mr. Boswell of Kingcausie for the establishment of an agricultural college or experimental farm, but he wished to make some remarks on the statements made by Mr. Boswell.

The Marquis of TWEEDDALE said that gentlemen, in taking part in these discussions, should invariably address the chair, and not the party whose remarks they criticised. The committee, in allowing discussion on these essays, were making an experiment, and he trusted that the Chairman would agree with him that nothing beyond their intention should be allowed.

Sir FRANCIS MACKENZIE had no desire to deviate from the rules of the Society; but all he should say was, that he held in his hand a paper, signed by Professor Buckland, Sir William Jardine, Mr. Smith of Deanston, Sir David Brewster, and other scientific gentlemen, who all confirmed the opinion expressed on that subject in the essay, and he might say farther, how much he desired that the plan of experimental farms might be adopted.

The Earl of ABERDEEN.—Captain Barclay of Ury has undertaken to deal with that much-vexed question—"Whether short-horned cattle are a profitable stock for the farmer in general circumstances?" (*Cheers.*)

Captain BARCLAY said there must have been some misunderstanding in supposing that he was pledged to come forward and state his opinion respecting the breed of short-horns. He never gave any pledge of

the kind. He was not prepared; and if he was so, he would be unwilling to intrude himself on this meeting, in which he observed many men of greater experience and more competent to form an opinion than himself. With regard to the question put to him, whether the breed of short-horns were really useful to rear and propagate, he should say it was a very delicate question. He could only speak from his own circumstances. Every man must judge of the circumstances of the soil and climate in which he may be placed. The observations he should make were, therefore, entirely confined to his own private experience. He introduced the short-horns, or Durham breed, sixteen years ago; he had found them fully answer all his expectations; they had thriven and improved in his situation. For the convenience of the farmers of the county, he had instituted annual sales which the farmers attended well, but at first they were cautious, feeling their way as it were. By crossing the short-horns with the native breeds, the Aberdeenshire and Angusshire breeds, animals were produced more valuable as regarded their particular situation than the native breeds of the county. They brought more in the market, and could be earlier fed, and made useful. By the addition of steam, and the ready access afforded to the Smithfield market, they found it more profitable to feed for that market than to sell their stock to the English drovers. Hence the breed of short-horns had increased daily in every quarter. And he must say, that many farmers who had good farms thought their interest advanced by having that stock. With regard to their feeding, he found them equally easy as the native breed. He had always taken them from the field about the middle of November, but they never entered a house from one year's end to the other—they were only taken into a shed during the middle of winter, and he found them equally hardy as any other breed, whether Highland or Lowland. He was without any intention of dictating to others in what he had said, or laying down how any other agriculturist should feed and act. The day was gone by for telling the farmers that they should consult their own interest. They all knew that, and there was no doubt but they would act upon it.—*(Great cheering.)*

The CHAIRMAN gave "The Plough." *(Cheering.)* The Duke of Richmond yet knew little of the farmers of Scotland, but he knew that they would absolutely neglect their duty if they did not return their thanks where they were justly due. He rose, therefore, to propose the "Health of their noble Chairman, who had presided over them on the present occasion." *(Great cheering.)* By the manner in which they had received it, he saw that there was no apology due to them for the toast being proposed, although he certainly felt that he ought to make an apology for rising to propose it. In Lord Aberdeen they had a president of whom no more need be said than that he was respected by all who knew his amiable character, and beloved by his numerous tenantry. *(Cheers.)* Where he found a landlord was beloved by his tenantry, he found quite sufficient to satisfy him he was an honourable and good man, whose health deserved to be drunk. He therefore gave them the "Earl of Aberdeen, and many thanks to him for his kindness in occupying the chair." *(Great cheering.)*

The Earl of ABERDEEN—Gentlemen, I beg to return you my thanks for the honour done me at the suggestion of my noble friend. To tell the truth, I feel myself very considerably out of my latitude at present. Placed in this chair by my noble friend, the President, and other office-bearers of the society,

I felt that I should have been shrinking from my duty if I had declined to occupy the position assigned me. Although confessing my ignorance of the objects and pursuits of this association, yet it would be impossible to live for a greater part of the year as I do, without becoming aware of the incredible advantage of the arduous exertions made by the society. Certainly there would be considerable difficulty in naming any other institution to which Scotland owes so much as the Highland Society, for the judicious, prudent, and admirable manner in which its arrangements have been made for the advancement of agriculture.

The CHAIRMAN said that Mr. Leslie, of Warty, would now read a retrospect of the progress of agriculture during the last half century.

Mr. LESLIE then read the following essay:—My Lord,—In responding to the call with which it has pleased your lordship to honour me, I am inclined to think the few observations in my power to offer will be best understood when confined to the statistics of a single parish. I have, therefore, selected that of Rayne, as affording a pretty fair specimen of the average soil, climate, and general agricultural management of Aberdeenshire; and, with your lordship's permission, shall proceed to read a few notes I have put together on the subject. Contrasting, therefore, the present situation of that parish with the report of it contained in Sir John Sinclair's Statistical Account of Scotland, I find that, in the course of the last forty years, the population has increased about one-fourth, and that, after supporting these additional mouths, the annual exportation of *spare* victuals has advanced from two hundred bolls of meal to at least three thousand quarters of grain. According to the same authority, the number of cattle sold off yearly averaged one hundred and eighty, estimated at 3*l.* a-head, or 540*l.*; whilst, now, not less than 3,000*l.* per annum may be stated as the general average sum derived from that source. Half a century ago, the far greater part of the tillage labour was performed by oxen, ten and sometimes twelve being employed in drawing one plough, and, in my own recollection, thirty-three such ploughs existed in the parish. These animals consumed so large a proportion of the best of the *keep*, that a comparatively small share remained for cows and young cattle and consequently from three to four cows and from ten to twelve young cattle was the usual number kept on a farm, and those starved on dry straw for eight months in the year. Dairy produce, of course, formed no part of the farmer's income, and so scantily supplied were the family wants, that *raw souens*—under the not inappropriate designation of "ousen's milk"—were frequently resorted to as a substitute for milk along with the oatmeal pottage. Now-a-days, however, the produce of the dairy and hen-roost, after amply and comfortably supplying household demands, bring in perhaps one-third of the land-rent. The home-bred stots, in those days, we considered unfit for plough cattle, which were invariably brought in large droves from Angus and Fife shires at the commencement of the ploughing season, and hence were the deficiencies arising from sales and casualties annually made up. Now the Steam Shipping Companies' books exhibit a very different result, and the number and quality of fat cattle exported from Aberdeenshire to the London markets perhaps equals, if not exceeds what is sent from any other county in Scotland. About the period before mentioned, instead of being valued per the acre, land was commonly estimated by the *plough*, rather a vague, undefined term in the present day, but which was then understood to comprehend about

thirteen bolls sowing in infield, ten folds of three bolls sowing each, and ten faughings of similar extent, in all about seventy-three acres. The infield was kept constantly under grain crops, and had been so from time immemorial, by the application of the whole farm-yard dung to the half of it every second year, on which occasion it was sown with bear or bigg, and, for the intermediate crop, with white oats. The folds were manured by means of the cattle and sheep being placed in them to rest during the forenoons and nights of the summer season, for which purpose one of them was annually enclosed with a temporary turf fence. After which treatment, two crops of white oats, two of brocked oats, and one of ama' corn, were taken in succession. Small flocks of sheep were kept on most farms, and the dung made by them, when housed in winter, constituted the usual allowance of manure for the faughs, which were always ploughed over from the lea the year previous to being cropped, and a second time when the dung was applied before sowing. In some cases, a little powdered lime carried in sacks on horseback from some of the inland lime quarries, was added, but so sparingly that it was sprinkled out by the hand; four crops of ama' corn were then taken in succession, and then both folds and faughings were left to rest in natural grass for the following five years, when the foregoing rotation was repeated. Turnips and sown grasses were rarely cultivated, and to a small extent; the former sown broad-cast, and yielding a miserable crop, from being ill-cleaned and left to thicken on the ground; the latter, when the land had been tolerably limed, produced richer and heavier crops of clover than can now be obtained from the same land in a more improved state. It may not be out of place to remark that although the produce from land in these days afforded a scanty return, it was, nevertheless, obtained at a very small expense—rents and servants' wages being low, and the farm implements of the simplest and cheapest construction.

Rent of Infield.....	from 13s. 4d. to 16s. 8d. per acre.
Folds and Faughings ..	2s. to 9s.
Ploughman's wages.....	£3 6 8 per annum.
Horseman's	3 0 0 "
Second do. and Goadman for oxen	2 15 0 "
Herd Boy's wages from £0 10 0 to 1 0 0	0 0 0 "
Maid Servant's do. ..	1 2 4 to 1 10 0 "

All converted from Scotch money, by which rents and wages were then calculated. Wood for a plough was purchased in the timber market of Laurance fair at Old Rain, the great emporium for that article, at from 3s. 6d. to 5s.; and the charge of a ploughwright for making it was 8d.—no iron used but for coulter and sock; yokes for oxen, from 8d. to 1s.; bows for do. from 2s. to 5s. per dozen; harness for horses, manufactured from sprots and rushes, and the annual clippings of the horses' tails prepared for the purpose—it being understood as forming part of a horseman's engagement that he was to furnish a complete set for the horses he wrought, which he had to manufacture during the course of the winter evenings. [There were no ploughing matches in these days; but, if the size of the furrow-slice were to determine the quality of the work, the ploughmen of the present times would have had no chance in competing with their predecessors in that art. I myself have seen a furrow-slice, turned by a crack ploughman, when he found the land deep enough and the surface sufficiently matted with weeds, of the goodly dimensions of thirty inches broad by twelve deep! There were also no cattle shows then; but eight or ten oxen ploughs, with their long horns and a corresponding length of bows, working alongside

each other on the farm, which I and another gentleman have oftentimes seen—if not a *show*—was, at any rate, a rare sight. I may also add, that the veterinary art had made so great progress that cures were performed nothing short of being miraculous. On one occasion a poor man's cow was given up as being incurable, when a neighbouring cow-doctor recommended some live baddocks being applied *internally*—which, of course, were procured from the fish-town of Whitehills, and five of them gently put over her throat, which had such an effect that, in a few days afterwards, the despaired of patient was gambolling about with her tail behind her. I may also mention another little anecdote regarding the value of turnips. In the year 1778, my father, wishing to give his people a treat at *clack* or harvest-home, sent a servant on horse-back, in charge of two pecks of meal, to the gardener of Tillyilt, near Haddo House, a distance of ten miles, from whence he brought, in exchange, exactly the same number of pecks of turnips, very much resembling oranges in point of size and colour, but the taste of which I still remember, and have seen nothing of the kind half so good since. Some of the foregoing statistics will doubtless appear so very extraordinary that it may be necessary to observe, in conclusion, that all of them are consistent with my own personal knowledge, with the exception of the cure performed through the instrumentality of the Enzie baddocks.

The following toasts were then given and responded to:—"The 'Health of the Lord Provost, and prosperity to the City of Aberdeen.'" The "Health of the Duke of Wellington." (*Great cheering.*) "The District Agricultural Associations." "The gentlemen who had taken so much trouble in preparing and bringing before them such ample essays, supported by such able reasonings." The Company separated about ten o'clock, P.M.

THE SHOW.

The spectacle within was most gratifying. Around the sides of the yard were stationed the larger animals in admirable classification. Near the west entrance stood a pavilion for the exhibition of roots and seeds, the produce of the dairy, &c., which was filled with many wonderful productions. Opposite, at the west entrance, stood the gallery for the ladies, not the least part in exhibition attractions.

The live stock was of the most splendid description, and every animal deserved a prize. The size of some of the oxen was truly remarkable. There was a black ox particularly large. The dun oxen of Mr. McCombie, of Tillyfour, were much admired. There was also a lot of first crosses, belonging to Mr. Tower, of Kinaldie, which did ample credit to the haughs of Kinaldie. Several specimens of the West Highland breed commanded much attention.

The utmost order prevailed throughout the whole day, and every one seemed highly gratified.

The following are a list of the prizes awarded:—

I. CATTLE.

SHORT-HORNED BREED.

- For the best bull, calved after 1st January, 1835, twenty-five sovereigns—His Grace the Duke of Buccleuch.
- For the second best ditto, of same age, fifteen sovereigns—Mr. Hutchinson, Jun., Monyray, Aberdeenshire.
- To the breeder of the best bull in this class, the honorary silver medal.
- For the best bull calved after 1st January, 1839, ten sovereigns—Mr. F. Simpson, Mains of Pitfour, Aberdeenshire.
- For the second best ditto, five sovereigns—Mr. George Robertson, Haughhead, Kingcardineshire.
- For the best cow, of any age, ten sovereigns—His Grace the Duke of Buccleuch.

For the second best ditto, seven sovereigns—Mr. Simpson, Cobairdy, Aberdeenshire.
 For the best heifer, calved after 1st January, 1838, seven sovereigns—His Grace the Duke of Buccleuch.
 For the best ditto, calved after 1st January, 1839, seven sovereigns—Mr. Hutchinson, Jun., Monyray.
 For the best two oxen, calved after 1st January, 1837, ten sovereigns—No competitors.

ABERDEENSHIRE HORNED BREED.

For the best bull, calved after 1st January, 1834, fifteen sovereigns—Mr. Keith, Netherthrd, Aberdeenshire.
 For the second best ditto, ten sovereigns—Mr. Gordon, of Bucharu.
 To the breeder of the best bull in this class, the honorary silver medal.
 For the best cow, of any age, ten sovereigns—Mr. Pirie of Colliethie.
 For the second best ditto, five sovereigns—Dr. Thomson, Inverury.
 For the best ox, calved after 1st January, 1836, ten sovereigns—Mr. M'Combie of Tillyfeur.
 For the best ox, calved after 1st January, 1837, seven sovereigns—Mr. Luusden of Keir.

ABERDEEN, ANGUS, AND GALLOWAY POLLED BREEDS.

For the best bull, calved after 1st January, 1834, fifteen sovereigns—Mr. Macbray, Royal Hotel and Torry Farm.
 For the second best ditto, ten sovereigns—Sir Thomas Burnett of Leys.
 For the third best ditto, seven sovereigns—Mr. Hector, Fernyflatt.
 To the breeder of the best bull in this class, the honorary silver medal.
 For the best cow, of any age, ten sovereigns—Mr. Walker, Wester Fintray.
 For the second best ditto, seven sovereigns—Mr. Dingwall of Brucklay.
 For the third best ditto, five sovereigns—His Grace the Duke of Richmond.
 For the best heifer, calved after 1st January, 1838, seven sovereigns—His Grace the Duke of Richmond.
 For the second best ditto, five sovereigns—Mr. Walker of Fintray.
 For the third best, an extra prize—Mr. Jopp, of Seggat.
 For the best heifer, calved after 1st January, 1839, seven sovereigns—Mr. Walker, Portlethen, Kingcardineshire.
 For the second best ditto, five sovereigns—Mr. Collyer, Forfarshire.
 For the best ox, calved after the 1st January, 1836, ten sovereigns—Mr. Welch, of Tillytoghills, Aberdeenshire.
 For the second best ditto, five sovereigns—ditto, ditto.
 For the best ox, calved after 1st January, 1837, seven sovereigns—Mr. Garland, Cairnston, Kincardineshire.
 For the second best ditto, three sovereigns—Mr. James Anderson, Pitcarrie, Kincardineshire.

WEST HIGHLAND BREED.

For the best bull, calved after 1st January, 1834, fifteen sovereigns—Mr. Grant, of Ruthven, Banffshire.
 To the breeder of the best bull in this class, the honorary silver medal—Mr. M'Laren, Rannoch.
 For the best cow, of any age, ten sovereigns—Mr. Grant, of Ruthven, Banffshire.
 For the best heifer, calved after 1st January, 1838, five sovereigns—His Grace the Duke of Sutherland.
 For the best two oxen, calved after 1st January, 1836, ten sovereigns—Mr. Ferguson, of Raith, M.P.
 For the best two oxen, calved after 1st January, 1837, seven sovereigns—Sir John Muir Mackenzie, of Delvin, Bart.

CROSS BREED.

For the best two oxen, first cross between a short-horned bull and an Aberdeenshire, Banffshire, Forfarshire, or Kincardineshire cow, calved after 1st of January, 1837, ten sovereigns—His Grace the Duke of Richmond.

For the second best two ditto, five sovereigns—Mr. James Walker, Wester Fintray.

For the best two oxen, same cross, calved after 1st January, 1838, seven sovereigns—His Grace the Duke of Richmond.

For the second best two ditto, five sovereigns—Mr. Morrison, of Bognie.

For the best two oxen, calved after 1st January, 1836, a cross between a West Highland bull and an Aberdeenshire Horned, or Aberdeen, Angus, or Galloway Polled cow, five sovereigns—Mr. Brown, of Linkwood, Morayshire.

For the best two oxen, of any cross, except those above specified, calved after the 1st January, 1836, ten sovereigns—Sir F. A. Mackenzie, of Gairloch.

For the second best two ditto, five sovereigns—no competition.

ANY BREED.

For the best ox, of any breed, showing the most symmetry, fat, and weight, calved after 1st January, 1836, ten sovereigns—Mr. Hay, of Shethin, Aberdeenshire.

For the best heifer, of any breed, calved after 1st January, 1836, showing symmetry, fat, and weight, seven sovereigns—Mr. Harvey, Tillygreig, Aberdeenshire.

For the second best ditto, five sovereigns—Mr. Longmore, Rettle, Banffshire.

For the best two oxen, of the Aberdeenshire Horned, or Aberdeen, Angus, or Galloway Polled breeds, calved after 1st January, 1836, ten sovereigns—Mr. Dingwall, Brucklay.

II. HORSES.

For the best stallion, for the improvement of the breed of draught horses, foaled after 1st January, 1830, fifty sovereigns—Loudon Craustoun, Abingdon Inn, Lanarkshire.

For the second best ditto, forty-five sovereigns—Mr. Robert Bowie, Stirlingshire.

For the third best ditto, forty sovereigns—Mr. Tait, of Auchmully, near Portsoy, Aberdeenshire.

For the fourth best ditto, thirty-five sovereigns—Mr. William Hay, Denny, Stirlingshire.

For the best breeding mare, for agricultural purposes, foaled after 1st January, 1828, and having had at least one foal, fifteen sovereigns—Mr. Thos. Bowman, Lanarkshire.

For the second best ditto, of the same age, and having had at least one foal, ten sovereigns—Mr. Wilson, Frithfields, Fifeshire.

For the best filly, for agricultural purposes, foaled after 1st January, 1838, eight sovereigns—Mr. Hay, Shethin, Aberdeenshire.

For the second best, of same age, five sovereigns—ditto, ditto.

SHEEP.

BLACK-FACED BREED.

For the best tup, lambed after 1st January, 1837, five sovereigns—Mr. John Falconer, Balmakettle.

For the second best ditto, of the same age, three sovereigns—Mr. James Deans, Mitchell-Hill, Peeblesshire.

The Judges noticed that all the animals in this class were of great merit.

For the best black-faced ewe, lambed after 1st January, 1837, five sovereigns—Mr. John Collier, Hatton, Forfarshire.

For the second best ditto, of the same age, three sovereigns—Mr. James Fergusson, Arnbarrow, Kincardineshire.

For the best wedder, of any age, five sovereigns—The Earl of Haddington.

LEICESTER BREED.

For the best tup, lambed after 1st January, 1837, seven sovereigns—Mr. George Brown, Halls, Haddingtonshire.

For the second best ditto, of the same age, three sovereigns—Mr. J. H. Davidson, of Cantray.

For the best Leicester ewe, of the same age, five sovereigns—Mr. Harvey, Tillygreig.

CHEVIOT BREED.

For the best tup, lambed after January, 1837, six sovereigns—Messrs. Young and Craig, Bighouse, Sutherlandshire.

For the second best ditto, of the same age, four sovereigns—to same exhibitors.

For the best ewe, of the same breed, five sovereigns—Messrs. Young, and Craig.

Another lot exhibited by them was noticed in terms of commendation.

SOUTHDOWN BREED.

For the best tup, lambed after January, 1837, five sovereigns—His Grace the Duke of Richmond.

A tup exhibited by Mr. Duff, Dingwall, of Brucklay, commended.

For the best shearlump tup, of the same age, three sovereigns—His Grace the Duke of Richmond.

For the best ewe, five sovereigns—His Grace the Duke of Richmond.

For the best gimmer, three sovereigns—His Grace the Duke of Richmond.

For the best wedder, of any cross or age, four sovereigns—His Grace the Duke of Richmond.

For the best wedder of cross Leicester tup and Cheviot ewe, four sovereigns—John Boswell, Esq., of Kingcausie.

SWINE.

For the best boar five sovereigns—His Grace the Duke of Buccleuch.

For the second best ditto, four sovereigns—John Boswell, Esq., of Kincausie.

For the best sow, five sovereigns—Mr. Thompson, New Inn, Inverury.

For the second best ditto, four sovereigns—Mr. William Alves, Aberdeen.

In the class of pigs, Mr. Boswell, carried the two premiums of four and three sovereigns.

WOOL.

Five sovereigns, for the best combing wool, was awarded to Mr. G. Brown, of Halls, Haddington.

Samples exhibited by Mr. Traill, Ratter, Caithness, noticed as being little inferior to the prize specimens.

The specimens of wool exhibited by Mr. David Skirling, Camptonhead, Haddington, and Mr. Alexander MacLavish, Inverness, noticed in terms of commendation.

DAIRY PRODUCE.

For the best cured butter, five sovereigns—Mrs. Duguid, Lechills, Aberdeenshire.

For the second best ditto, three sovereigns—Mrs. Ann Macdonald, Easter Thainston, Kincardineshire.

The butter exhibited by Mrs. J. Reid, Balcairn, and Mr. James Walker, Western Fintray, were recommended.

The Judges noticed favourably, butter made from whey by Mrs. Donald, South Monecht, Aberdeenshire.

For the best full milk cheese, five sovereigns were awarded to Mrs. Morison, Balhagarty.

For the second best ditto, three sovereigns—Mr. James Walker, Wester Fintray.

Cheese exhibited by Mrs. Gamack, Whitehill, commended.

For the best skim-milk cheese, five sovereigns—Mrs. Adamson, Middle Drums, Forfarshire.

For the second best ditto, three sovereigns—Mr. James Walker, Wester Fintray.

The SECRETARY mentioned that there was a large quantity of extra stock, which the Judges considered to be entitled to high commendation, but had not had time yet to consider how the 50*l.* at their disposal should be divided.

EXTRA STOCK.

Of the class of *cattle* in the extra stock, the Judges commended four cross-bred steers, belonging to Mr. William Tower, Kinaldie, Aberdeenshire, as possessing great merit, and deserving of a premium. They also commended a short-horn six-years-old Quey, the

property of Mr. Hutchison, Middleton of Rora, Aberdeenshire, as possessing merit. Of the West Highland breed, the Judges commended a three-year-old ox, the property of the Duke of Sutherland, as possessing great merit; as also a pair of two-year-old oxen, the property of J. Mackenzie, Esq., jun., of Glack, as beautiful animals. Of the Aberdeenshire breed, the Judges commended two four-year-old oxen, of great merit, the property of Mr. William McCombie, Tillyfour; and three polled oxen, the property of the Messrs. Stephens, Millden, Aberdeenshire, as possessing great merit.

Of the class of *sheep*, the Judges commended a South-down wedder, the property of the Duke of Richmond, as worthy of notice; and four very good Cheviot gimmers, the property of Mr. Brown, Linkwood. The Judges specially noticed a very extraordinary ewe of the Cheviot breed, five years old, having borne fifteen lambs in four years, exhibited by Mr. Thomas Rae, Eastside, Tillygreig.

Of the class of *horses*, the Judges commended the following animals:—1. A pair of grey draught fillies, four years old, well matched and useful, the property of Mr. William Ronaldson, Tulloch, Kincardineshire. 2. A brown draught brood mare, six years old, the property of Mr. George Irvine, Balbridie, Aberdeenshire. 3. A pair of grey draught mares, six years old, well matched, handsome and useful, the property of John Boswell, Esq., of Kingcausie, Kincardineshire. 4. A bay gelding, the property of Mr. James Tindal, Veterinary Surgeon, Golspie, upon which a bold and successful operation had been performed by him. In consequence of an external injury, the spinous process of one of the bones of the withers became diseased, he made an incision between the shoulder blades, and cut out nearly four inches of the bone; the parts healed up, and the horse afterwards became quite sound, leaving only a hollow about the size of a person's hand in front of the saddle, but which is hid by the wither-lock. In consequence of the difficulty of performing such an operation, the Judges recommended a premium to be awarded to Mr. Tindal. 5. A bay Cleveland entire colt, the property of Alexander Morison, Esq., of Bognie, Aberdeenshire, promises to make a useful stallion to cross with clean short-legged mares. 6. A very good specimen of a Shetland pony, the property of Mr. Thomas Thomson, Inverury.

IMPLEMENTS.

The Judges of the Classes recommended premiums to be awarded to the following contributors, viz.:—

1. To Mr. John Peter Skene, Tough, for a winnowing machine.

2. To Mr. William Armstrong, for application of a folding mould-board to Mr. Smith of Deanstons' subsoil plough; and to Mr. John Mackinlay, Overseer at Deanstons, for an improved yoke-chain, exhibited by the Messrs. Drummond of Stirling.

3. To Mr. Alex. Nicol, Goldy, in Forfarshire, for a model of a machine for sowing turnips and bone-dust.

4. To Mr. John Chapman, for his mode of adjustment of the handle of the short scythe.

The Judges also commended the following:—

1. Gardener's patent turnip-cutter.

2. Mr. Cleland's catch for holding bulls.

3. Mr. Donald's iron plough with apparatus for sowing bone manure.

4. Mr. Lindrum's instrument for ploughing old leas.

5. Mr. Neil's good workmanship of his implements, and especially for a cart on an improved principle for adjusting the load.

6. Mr. Sampson's improved turnip hoe, and simple machine for washing clothes.

7. Mr. H. J. Smith's model of a hollow brick wall, used for a simple application of the principle of heating by hot water.

8. Mr. Sironach's model of a snow plough.

9. Mr. Buist's specimens of wire gates, manufactured by Mr. Douglas, Cupar, Fife.

ROOTS AND SEEDS.

Of this class, the Judges, in their report, noticed the following particulars, viz.:—

1. In the extensive and varied collection of Messrs. Lawson and Son, 102 varieties of wheat, 30 of barley, and 42 of oats, in grain and straw, 100 varieties of potatoes; and a very full assortment of cultivated grasses, forage, herbage, and other useful plants.

2. Very fine specimens of Whittington Wheat, weighing 64 lbs. per bushel; Potatoe Oats, 47½ lbs.; Sandy Oats, 47 lbs.; Chevalier and Cambridge Barley; and also specimen of Purple-top Swedish Turnip, grown on the Home Farm of his Grace the Duke of Richmond, at Gordon Castle.

3. Perennial Rye-grass Seed, weighing 30½ lbs. per bushel; and about fifty-eight specimens of Clover Grass and Turnip Seeds, from Mr. David Ronghead, Haddington.

4. Mangel Wurzel roots, fine specimens of carrot, especially the White Altringham, very good specimens of Onions, also a large collection of Pines, amongst which were particularly noticed a variety of *Pinus Sylvestris*, named *Cerulea*, from Mr. James Roy, Aberdeen.

5. Fine Perennial Ryegrass Seed, weighing 28 lbs. per bushel, from Mr. James Pirie, Collieston, near Huddly.

6. Specimens of Potatoes, crop 1839, in a high state of preservation from Mr. John Leslie, Huntly.

7. Specimens of two varieties of Cattle Potatoes, recommended to cultivators in late districts, on account of their early character and productiveness, from Dr. Farquharson, Alford.

8. Specimen of a Seedling Potatoe, exhibited as a hardy and healthy variety, from Mr. John Barnett, Mains of Filorth, near Fraserburg.

9. Specimens of three varieties of Potatoes, from Sir Francis M'Kenzie, Bart., of Gairloch, with an account of their weight, showing the variety under the name of Wellington, as the most suitable in his district of Ross-shire.

10. Also, from Sir Francis Mackenzie, Bart, specimens of seven varieties of wheat, sown for experiment in November last, with an interesting account of the produce.

11. A specimen of Hopeton Oats, eight feet in length, of which a field, the soil a sandy loam, was sown by Sir Neil Menzies.

12. In this department there was also exhibited a very fine specimen of very fine ground bone-dust, manufactured in Sweden, from Mr. Balingall, Kingsdale, in Fifeshire, who states that twelve bushels produce the same effect as twenty of that which he has been accustomed to use.

13. The Judges noticed a collection of specimens of wheat, classified with the number of grains of wheat in a scruple, apothecaries' weight, of each variety, indicating their form, colour, and size, which Colonel Le Couteur of Jersey exhibited as a model for a general and uniform system of classification, which would answer for any kind of grain.

The Society's Dinner was held in a pavilion at the back of the Royal Hotel, which was erected for that purpose. About 1600 sat down to dinner.

ON SALT.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Having been in the habit of giving fine salt to my sheep, I have lately substituted rock salt, there being less wasted in wet weather, but finding the sheep consume a much less quantity of the latter, I shall feel obliged to any of your experienced correspondents, who have tried both, to acquaint me, whether they have found rock salt have the intended effect of preserving a healthy flock? as I am doubtful of its being equally efficacious.

I am, Sir, your obedient servant,
Kingsbridge, Oct., 1840.

J. A.

NITRATE OF SODA.

TO THE EDITOR OF THE FARMERS' MAGAZINE.

SIR,—I herewith beg to hand you the result of an experiment with nitrate of soda, sown on wheat in the spring, at the rate of 1½ cwt. per acre, showing an extra produce of 4½ bushels of wheat and 13 trusses of straw per acre, which was proved as follows:—

A cant sown with nitrate of soda up the middle of the field, measuring 1 acre, 1 rood, and 5 perches, grew 6½ quarters of wheat, averaging 5 quarters 3 bushels per acre; the cant next to to the above, cut, carried, and thrashed also by itself, measuring 1 acre, 3 roods, and 3 perches, grew 8½ quarters, averaging 4 quarters 6½ bushels per acre; showing an increase of 4½ bushels of wheat, both samples weighing 65lbs. per bushel, but the sample of the nitrate of soda was the boldest, and the darkest colour, but the same value as the other.

The cant of nitrate of soda grew 3 loads, 1 quarter, and 5 trusses of straw, averaging 2 loads, 2 quarters, and 5 trusses per acre; the cant next to it grew 4 loads of straw, averaging 2 loads, 1 quarter, and 1 truss per acre; showing an increase of 1 quarter and 4 trusses per acre.

Therefore we may conclude it pays, for I expect upon a poorer season the difference of produce would be greater.

	£	s.	d.
The extra produce of wheat, viz., 4½ bushels, at 68s. per qr., makes	1	18	3
The extra produce of straw, viz., 13 trusses, at 1s.	0	13	0
Extra produce realizing.....	2	11	3
The cost of nitrate of soda, viz., 1½ cwt., at 20s.	1	5	0

Realizing the actual profit of £1 6 3
per acre, which pays the rent.

As I am the author of the above experiment, I can vouch for the above facts, which may be considered conclusive as to the benefit gained by sowing nitrate of soda on wheat. The soil is a mixture of chalk and loam, with flints and clay.

Thinking these facts would be of some use to your readers, I have sent them, and remain your obedient servant,

ADDIS JACKSON.

Kent, Oct. 25.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—In your last number of the "Farmer's Magazine" is an account of a remarkable Scotch thistle, measuring eight feet six inches in height, and twenty-four feet in circumference. This brings to my recollection his Majesty George the Fourth's entry into Edinburgh from Leith, on the occasion of his visiting his Scottish dominions, when an enormous thistle, said to be more than eleven feet high, was borne in front of the procession by a stalwart Highlander in full Highland costume; appended to this thistle was a streamer, bearing the Scottish motto—"Nemo," &c. It was said at the time that this thistle had been purposely cultivated for the occasion in the garden of a nurseryman in Leith Walk, but at this distance of time I have quite forgotten his name.

Yours, &c.,

Lancashire, October.

W. W.

2 F 2

AGRICULTURAL REPORT.

GENERAL AGRICULTURAL REPORT FOR OCTOBER.

With some few exceptions, the weather of this month has been uniformly fine, consequently exceedingly favourable for the prosecution of those farm labours indispensably necessary at this highly important period of the year. Even in the most backward districts, the whole of the out-standing crops were secured in excellent condition by about the 12th, and it has been a general subject of observation amongst those immediately engaged in agricultural pursuits, that the present year's harvest has met with fewer atmospheric obstructions, during its steady progress towards completion, than was ever before remembered. This fortunate circumstance has proved of the greatest benefit to our farmers, in several points of view. 1st, by securing to them moderately fair returns for their capital embarked in the cultivation of the soil; and, 2ndly, by placing them in possession of grain, for which a ready market can always be found; instead, as has too frequently been the case, of being compelled to almost inundate the various markets with such qualities of produce, which, without taking into consideration the great difficulty of procuring purchasers for it, never can repay them; indeed, we may safely venture to assert, without the least fear of contradiction, that the average yield of wheat in England was never before surpassed as to quality. As to barley and oats, we are glad to find that they have turned out unusually fine, both as to yield and quality, but beans and peas are exhibiting a limited produce.

Immense breadths of land, in the whole of our southern, western, and midland counties, have been already sown with wheat, while the soil has worked remarkably well, particularly in low situations; yet the want of a sufficient quantity of moisture has been complained of in the cultivation of the uplands.

With respect to the extent of the cultivation of wheat, we understand it will, in all probability, be very extensive, and much on the increase; since the new varieties of that description of grain have met—and very properly too—with decidedly more favour than for some lengthened period. It is to be much desired that such will be the case, as, by an additional growth of wheat, a larger share of protection will be secured to the agriculturists than under prevailing circumstances. We maintain, that the soil of England, by the judicious application of science in its cultivation, and the breaking up of its wastes, is capable of producing an adequate supply of wheat for home consumption, without the least aid from the foreign growers.

With such a glaringly apparent fact—and who, with the least share of discrimination or knowledge of our situation, will attempt to deny it?—we cannot but express our astonishment, that for many years such extensive supplies of foreign wheats have found their way into our markets, at very low or nominal duties, without more active means having been employed to prevent the foreigner from entering so fully into undue competition with the native producers. If we refer back to the last century, we shall find that we were corn *exporters*, instead of importers; and why, we will ask, should such not be the case at this moment? But it will be argued that production has not kept pace with the increase in the population. True, such may be the case, but to what must this be attributed? Not, we opine, to any deficiency in the amount of land which *might* be cultivated; but to the adaptation of crude systems,

and the neglect of those lands which, with only a moderate outlay, might be successfully brought into cultivation. In our opinion, the simple fact is that landlords and farmers have the uncontrolled power, with the aid of moderately favourable seasons, of rendering negative the foreign wheat trade, by a close attention to the foregoing hints, which we trust will be received in that spirit of candour and fairness in which they are offered. Let, therefore, this great desideratum be accomplished, and we may rest assured that great advantage cannot fail to accrue from it, not only by the value of wheat being more readily fixed, but the stoppage of that drain of the precious metals which is often made to the disarrangement of monetary affairs, to the great detriment of the community at large.

Throughout the whole of our grazing districts the epidemic amongst cattle has been generally complained of, and great losses have been the result to our graziers. Owing to the deficiency in the present year's crops of grass, the most cheerless accounts have reached us, while recourse has been had to plentiful supplies of winter fodder, which, as a matter of course, must inevitably tend to create a rise in price during the forthcoming season. Store stock continues to be held at high rates, and speculation appears to have been for a time almost at an end.

From Scotland, we have favourable statements—the condition of the new corn being represented as exceedingly fine. This, with the plentiful supplies offering, has had a depressing influence upon the demand in most of the markets, and prices have generally declined. Wheat sowing has gone on steadily, under good auspices.

Throughout Ireland the crops have been all secured; but the produce does not turn out so well as was expected. Although the supplies of grain offering in the Dublin and other marts have been small, a small amount of business has been passing, at barely stationary prices.

The following is our usual monthly statement of the transactions in Smithfield cattle market.

The supplies have amounted to 15,800 beasts; 127,000 sheep; 912 calves; 3,084 pigs; while the prices have ranged as follows:—Beef, from 3s. 2d. to 4s. 8d; Mutton, 3s. 4d. to 3s.; Veal, 4s. to 5s.; and Pork, 4s. to 5s. per 8lbs.; to sink the offals.

A STATEMENT AND COMPARISON of the SUPPLIES and PRICES of FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, October 28, 1839, and Monday, October, 26, 1840.

	At per 8lbs. to sink the offals.							
	Oct. 28, 1839.		Oct. 26, 1840.		Oct. 28, 1839.		Oct. 26, 1840.	
	s.	d.	s.	d.	s.	d.	s.	d.
Coarse & inferior Beasts	2	4	2	8	3	0	3	2
Second quality do.	2	10	3	2	3	4	3	8
Prime large Oxen.....	3	6	3	10	3	10	4	2
Prime Scots, &c.....	4	2	4	6	4	4	4	8
Coarse & inferior Sheep	2	10	3	6	3	4	3	8
Second quality do.	3	8	3	10	3	10	4	0
Prime coarse woolled do.	4	0	4	6	4	2	4	6
Prime Southdown do.	4	8	5	0	4	8	5	0
Large coarse Calves ..	4	0	4	4	4	4	4	8
Prime small ditto.	4	6	4	8	4	10	5	0
Large Hogs.....	4	4	4	10	4	0	4	6
Neat small Porkers ..	5	0	5	4	4	8	4	10
SUPPLIES.								
	Oct. 28, 1839.				Oct. 26, 1840.			
Beasts.....	3,626				3,733			
Sheep	23,690				25,170			
Calves	119				119			
Pigs.....	569				780			

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

YARN GREAT OCTOBER FAIR.—This ancient standard fair, held on the 19th ult., for horses and cattle, and on the 20th for sheep and cheese, and also the new horse show on the day preceding the fair, (which, Sunday intervening, was this year held on the 17th,) were well attended. Several highly respectable dealers were in the town a day or two prior to the fair, and good hunters, roadsters, military, and also strong machine horses were much enquired for, and commanded remunerating prices; but common harness horses and coaching colts, of which there was a large show, were not so much in demand as they were last year. The show of short-horns was quite equal to that of former years, and was declared by the dealers, both as to numbers and the quality of the cattle, far to exceed that of any other fair in the kingdom. Good calving cows and fresh steers, and heifers, all met with ready sale; but large forward steers were the most in demand. Beef sold at from 6s. 3d. to 6s. 9d. per stone; and some of the best steers were sold as high as 7s. On the 20th there was an excellent show of tups, as well of the Leicester as of the Tees-Water breed. There was also a very large show of shearlings and other fat sheep, which sold at from 6d. to 6jd. per pound, and the choice of breeding ewes, sheep for turnips, and Highland wethers was likewise good. The show of cheese was large, and the quality good, and they met with quick sale; new milk at from 54s. to 65s., general price 58s. per cwt of 112lbs., and old milk at from 30s. to 36s. per cwt.

At **SALISBURY CHEESE FAIR**, on Tuesday last, old Somerset sold at 75s.; North Wilts, 63s. to 66s.; Half Coward, 53s. to 60s.; Skims, 32s. to 40s.; sale very flat; a large quantity still unsold, and a small supply. Wednesday, 2 o'clock.—Much still remains; it has for some time past been moving for Winchester Fair, which will be on Saturday next.

BLYTH FAIR.—This fair on Tuesday last, was but very thinly attended. The quantity of beasts exhibited was but small compared with former years, and prices for them were decidedly lower than of late. There was a very poor show of sheep, which were a complete drug, and very little business was transacted amongst them.

GAINSBURGH MART commenced as usual, on the 20th ult., and although, probably from some misunderstanding as to the period when the mart commences, which is always on the 20th, (not the Tuesday after), there was a lack of exhibitions, yet the number of persons visiting the town was pretty good. The cheese fair, notwithstanding that the bulk in the neighbourhood was some time since bought up, was well supplied, and prices were good. Best Trent side from 68s. to 72s.; lower quality from 60s. to 65s.; Staffordshire, lumps of good quality sold at 70s. What is rather uncommon, it is believed that every parcel brought into the market was sold. The stock fair was tolerably supplied, and brought good prices.

HOWDEN GREAT HORSE FAIR.—This annual horse fair, one of the most considerable in the kingdom, lasts one fortnight. A number of London dealers were down in the neighbourhood for some time previous to the commencement of the fair, making extensive purchases of first rate hunters and carriage horses. Mr. Dyson, the great army contractor, purchased upwards of 100 troop horses for the 13th Light Dragoons, and the Earl of Rosslyn, and we heard a respectable dealer say, that there never was such a number of horses exhibited for sale at Howden fair as during the present year. Two Cavendish colts sold for 200l., and several others from 150l. to 300l.; and we heard a London dealer say that more horses were to be seen at Howden fair than at any other fair in the world. Many valuable horses left Howden for London, Italy, Germany, Russia, and various parts of the continent, during the past week. This celebrated market for horses for several years past has been progressively earlier in its commencement, and the arrivals on the 20th and 21st ult. betokened a very great fair. On the

23rd and 24th the stables attached to all the different inns of the town were crowded, and it was with difficulty that standings could be procured. It was not, however, until the 24th and 25th ult., that the town began to exhibit much bustle, when the influx of buyers became great (especially by the railroad recently opened between Selby and Hull.) The arrivals on the 25th and 27th ult. from different parts of the kingdom were considerable, and we may venture to assert that never, in the memory of the oldest inhabitant, was such a number of horses and men congregated in the town of Howden as during the present fair. The Howden Michaelmas Horse Show is now acknowledged as decidedly one of the first in the kingdom; it is the great mart to which the breeder can bring his horses with the certainty of meeting with a good customer. The accommodations at the respective inns of the town are of a very superior description. The following distinguished personages attended the fair, viz.—The Earl of Rosslyn, Lord Hawke, Lord G. Bentinck, Col. Cholmley, Capt. Hotham, Capt. Butler, several Officers of the 1st Dragoons and 7th Hussars, York. Amongst the attendance of London dealers we observed the following:—Messrs. Knight, Elmore, Dyson, Dickinson, East, Newman and several distinguished foreigners from Russia, Prussia, Germany, France, and other parts of the continent.

SPRINGFIELD SALE OF CATTLE.—The largest sale of stock ever known in Morayshire took place on Monday last, at the farm of Springfield, near Elgin. The number of cattle brought to the hammer amounted to about 280. They had all been carefully selected by the spirited owner, Mr. John Wink, farmer and cattle dealer, and included a great number of first-rate animals of the most approved breeds. The short-horned and Highland cattle, in particular, were greatly admired, and the prices they brought evince the high estimation in which these valuable descriptions of stock are held by the Morayshire farmers. The sale was attended by a vast concourse of gentlemen from all parts of the county, with a sprinkling from the different counties both in the north and south of this locality. Previous to the commencement of the sale, upwards of 300 gentlemen partook of an excellent dinner, which was most comfortably served up in a tent erected for the occasion. P. Brown, Esq., Linkwood, did the honours of the chair, and was ably supported by the stewards. This part of the day's proceedings having been concluded, the gentlemen present proceeded to a neighbouring field, where the sale commenced, and the bidding went on with great spirit. The sale concluded about seven o'clock, when the whole cattle were disposed of. They were generally knocked down at high prices. Two-year-old Morayshire stots brought 9l. to 14l. a-head; and three-year-olds from 10l. to 15l. One year old Highland stots, of the Argyllshire breed, brought from 5l. to 10l.; one pair was knocked down at twenty guineas. Two year old stots of the Skye breed, 9l. to 12l.; and three year olds of the same breed, 12l. to 15l. Two year old Highland queys sold exceedingly high; they brought from 15l. to 20l. a-head. The price of two year old polled queys of the Aberdeenshire breed, also ranged from 15l. to 20l. a-head. There was a brisk competition for some remarkably fine short horned queys, and, in consequence, they brought high prices, from 20l. to 40l. a-head; one or two superior animals brought about forty guineas each. Several cross bred cows were sold at from 16l. to 30l.; one crack cow and a calf brought 45l. The total produce of the sale amounted to nearly 3,000l.; making the average value of the cattle sold about ten guineas a head.

GREAT SALE OF SHORT-HORNS, AT HART WARREN, NEAR HARTLEPOOL.—The sale of Short-horns, belonging to Messrs. Dodds, of Hart Warren, near Hartlepool, took place on Thursday last, agreeably to the announcements that had appeared in the newspapers. The sale was confided to the management of Mr. Wetherell, who for ability and experience in sales of stock is without a rival. As might have been

expected from the celebrity of the herd, and the great pains that their owners, through many years, had taken to bring them to perfection, the sale attracted a very numerous attendance of gentlemen and breeders, not only from the neighbouring counties, but from distant parts of the kingdom, as well as from Ireland and Scotland. Amongst those present, were H. J. Spearman, Esq., of Newton Hall; Col. Tower, of Elemore; — Shafto, Esq., of Whitworth; Major Healey; Thomas Bates, Esq., of Kirkleavington; J. Booth, R. M. Jaques, B. Wilson, C. H. Rowe (Tolesby), J. Parrington, J. Hall, Richard Parkinson and Son (Notts.), — Greatham (Lincolnshire), Burgess (Beds.), Jepp (near Aberdeen), — Whittaker, W. Paley, J. Maynard, R. Jobson, N. Wawn (Shields), C. H. Bainbridge, — Emmerson (Eryholme), and — Harrison (Greta Bridge) besides many others with whose names we were unacquainted. Messrs. Dodds exhibited much kind and genuine hospitality on the occasion. The dinner, provided under the direction of Miss Dodds, was not only substantial but elegant; and the splendid punch that was so plentifully distributed will not readily be forgotten by the guests. For the information of our agricultural readers, we subjoin a list of the lots, purchasers, and prices:—

	COWS.	gs.
Bosebud	Mr. Proctor	20
White Rose	Mr. Jaques	30
Clara	Mr. Whales	47
Cherry	R. E. D. Shafto, Esq.	30
Moss Rose	Mr. Greatham	51
Red Rose	Mr. Maynard (Harley)	90
Countess	Mr. Greatham	60
Princess	Mr. Wetherell	140
Peeress	Mr. Emerson	51
Lily	Mr. Greatham	64
Jessy	Mr. Bell	51
Ruby	Mr. Paley	50
Duchess	Mr. Johnson, (Turvelaws) ..	90
Warren Rose	Mr. Jaques	51
TWO YEARS' OLD HEIFERS.		
May-flower	Mr. Jobson	31
Rosetta	Mr. Wawn	32
Lady Vane	Mr. Harrison	82
Matilda	Mr. Jaques	67
Victoria	Mr. Bainbridge	26
YEARLING HEIFERS.		
Lady Arabella	Mr. Jobson	27
Diamond	Mr. Other (Leyburn)	30
Lady of the Vale	Mr. Maynard (Marton)	44
Bee's Wing	Mr. Emerson	30
Lady Flora Hastings	Mr. Burgess	31
HEIFER CALVES.		
Marchioness	Mr. Rowe	46
Amazon	Mr. Jaques	26
Amalthæa	Mr. Harrison	53
Bellona	Mr. Burgess	52
Eglantine	Mr. Linton	50
BULLS.		
Bellerophon	Mr. Spearman	50
St. Alban's	Mr. Jepp	51
Bloomsbury	Mr. Weiherell	46
Commodore	Ditto	30
BULL CALVES.		
Bellurus	Mr. Mowbray	18
Bitton	Mr. Burdon	26
Agon	H. Vansittart, Esq. (Kirk-leatham)	21
Noble	Mr. Pearson	31
Waterloo	Mr. Frizzle	23
Belvidere	Mr. Emerson	50

Thus producing a total of 1,803 guineas—1893/ 3s. ; or an average of 48l. 11s. per lot.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I should feel obliged if any of your numerous correspondents would inform me, through the medium of your valuable Journal, or per post,

the mode of brewing from mangel wurzel, and what authors have written upon the subject, as regards cultivation, and the purposes to which it may be applied chemically, &c., &c., and who are the publishers. I have the honour to be, Sir, your humble servant,

THOMAS DAVIES.
Rock, near Bewdley, Worcestershire,
13th October, 1840.

ON GRINDING WHEAT.

Which is the cheapest and best machine for grinding wheat and other grain by hand?

What economical use can the leaves of the rhubarb plant be applied to?

Is linseed (boiled) good fattening for pigs, and do you know of anything cheaper and better?

Which is the best and cheapest treatise on the management and breeding of pigs and poultry?

CALENDAR OF HORTICULTURE FOR NOVEMBER.

The operations in all the departments of the garden must in a great degree be governed by the weather and existing condition of the land, for it may be stated as an axiom, which should never be lost sight of, that if the earth be in a wet and swampy state, (unless it consist of almost pure sand), and the season be rainy, every act of removal or disturbance, even by the smallest tool, is productive of mischief; weeding by the hand is therefore the only thing that can be safely effected: and even this requires some caution. November is, generally, a very moist and foggy month, and we in the south have enjoyed a very great proportion of powerful sunshine; therefore, it is reasonable to expect a corresponding quantity of autumnal rains. After thus qualifying what we have to suggest, we proceed to give the detail of what may be undertaken in

1. THE VEGETABLE DEPARTMENT.

Asparagus beds, if not completed already, must be dressed for the winter. There are now two methods of arrangement: first, and best to prepare a plot of ground very richly, in a way which will be described in due season, and to plant single rows eight or ten feet asunder, cropping the intervening grounds with some light vegetables. Those who possess such rows, should, after removing the decayed haulm, clean and rake the surface, and give a coating of manure, light earth, free from stones, three inches in depth. If the plantation is new, or have been cut for the first time, it would do good to open a trench spade wide and eighteen inches deep on each side of a row, and to fill it nearly with manure, incorporated with one-third of earth. This deep enrichment will afford a fund of aliment for years to come.

But the old fashioned beds of three or four rows of plants are still seen everywhere, and it will be worth while to try an experiment to turn the haulm to account, in lieu of burning it. Dig out twenty inches of the earth of the alleys, after cleaning the beds, and deposit this upon their surface; throw the haulm into the trenches, and tread it even; sprinkle upon it lib. of nitrate of soda to every five yards of alley, and return so much of the earth as will leave the bed three inches higher than before: trim the edges and manure the surface, if the 'grass' be not strong.

Artichokes.—Clear the beds of decayed leaves,

and cut away those which overhang, leaving the heart firm and upright, then heap strawy litter on each side a foot deep; for this vegetable is impatient of severe frost. G. Lindley observes, "Artichokes require a deep soil, and before they are planted, the ground should be well manured and trenched two feet deep; this operation should be performed in April, as soon as the young leaves begin to show themselves above the surface of the ground." If any one have recently planted artichokes in shallow unprepared land, this quotation from so high an authority, will show the necessity of treating the beds now in the way directed for asparagus. This deep manuring, aided by the protective top-dressing, will lay the foundation of vigorous growth next season.

Brocoli—purple and white. We are directed to "lay the plant into the ground;" but the process appears barbarous. Mr. Knight approved of it, with the condition, however, that it should be effected in September. Now, with all deference, we object to these removings; it were better to plant in trenches at first, sloping the heads of the brocoli towards the north, if preferred; then, by earthing up the stems as cold weather approaches, with the soil from the south or west ridge, the plants would be effectually protected to the base of the lowest leaves.

Peas and beans are sown occasionally: the earliest sorts of the former sometimes succeed perfectly in a long row in front of a peach wall. If the season prove mild, they rise freely, and should be very early supported by short branchy sticks of spruce fir; these give support and protection at the same time. *Beans* transplant very well; therefore, the seeds of the Mazagan, or long pods, may be sown thickly in a small space of ground, where the plants can be easily and effectually protected. Nice are great enemies to these crops. We were lately informed by a friend in the north, that roasted oat-cake is "a deadly lure" to these marauders, and if so, we can add that no trap, if well baited, is more effectual than the one constructed of a common flat tile and three sticks, called "the figure of 4 trap."

Rhubarb plants, in beds or rows, are now deprived of their leaves, and the roots are sunk in repose. If the refuse be not already removed, that clearance should be no longer delayed. The ground ought also to be raked neatly, but *manure* will not be required till the spring. *Small rhubarb* is sometimes forced; in that case deep pots must be inverted over the plants like those used for kale, covering them with warm stable dung and leaves.

Rhubarb can also be made to grow in pots or boxes placed in a cellar; but though curiosity may dictate the attempt to obtain early stalks, deprived of colour by the absence of light, nothing can equal, much less excel in flavor, the natural stalks of the *red Goliath*. It is to this variety that we desire to direct attention, because, for volume of produce, high flavour, and duration of season (from April to September), it remains without a rival.

Kidney beans of the runner kind, produce tuberos roots, slightly resembling those of the dahlia. The swollen processes are receptacles of living sap, prepared to re-supply the vital germs which, under favourable treatment, will develop new runners, leaves, and flowers; generally they perish in the cold ground; but if taken up early, and preserved in dry sand during winter, may be re-planted in April. We have partially succeeded, but deem it more safe to refer to the authority of

G. Lindley, who observes—"In taking up the roots, care must be taken not to injure the stem, but to cut it down to within a foot of the crown of the root; this part must also be carefully covered with old tan to preserve it from frost. In April these roots must be planted out again, when they will produce another abundant crop."

The covering of tan alludes to open ground protection, but in the cellar it will suffice to bury the roots and crowns in sand, deep enough to exclude air, and retain the natural moisture.

FRUIT DEPARTMENT.

Planting.—It is not too late to plant every sort of fruit tree or bush, in orchard and garden; but as it is quite certain that after the second week of October all vitality has ceased in the leaves, and therefore that the tree is in a state of quietude, the greatest advantage may be reaped from planting about the third week of that month, for though vegetation above ground is silent, the roots move. We therefore seize the present moment to remind the planter that he will in future acquire security, and gain some time by effecting his removals while the sun has power, and the ground is replete with warm electrifying vapours. As to choice of trees, the etruge, violette hâtive, and noblesse peaches are unrivalled; the etruge nectarine corresponds in value; the Moor park and abricot-peaché apricots are the best. Of cherries and plums, the taste must be the guide among so many; but in choice of *pears*, that most delicious of all winter dessert fruits, there can be no hesitation to recommend (without however, pretending to disqualify the old worthies), 1st, the *Beurré d'Aremberg*, as the handsomest of wall trees, if trained against a lofty gable, and equally estimable for the quantity and flavor of its large fruit. 2nd, the *Marie Louise*, better than Napoleon, large, yellow when ripe; the fruiterers' windows afford evidence of the fertility of the trees, and the estimation in which the pears are held. 3rd, *Easter Beurré*, which is a profuse bearer, hardy, and the pears will keep sound till April. All these pears succeed, as experience has proved, grafted on a quince stock, and grown as open dwarf-standards, but the fruit is larger on a wall or espalier tree.

Of currants.—The best white is the large-fruited Dutch, and of the red varieties, none for colour and flavor excels Mr. Knight's "Crystal." All may be moved now, or propagated, by selecting large young cuttings from known trees, with a small heel of older wood, and fixing them firmly three eyes deep in a nursery bed of light good loam recently moved, or in the places where the bushes are finally to remain. These remarks apply to *gooseberries*.

Of vines.—The best bearers, white or yellowish fruit, are the true muscadine and the sweet-water; of red or black, the *Esperione*, and in very warm situations, the black frontignac.

Choose young vines raised in pots from cuttings, because the balls secure success. Affect not a *rich soil*; pure turfy loam interspersed with fragments of old mortar, and bruised bones, lying upon a flinty or chalky bottom, is the most fertilizing bed for the grape. In pruning and training (which cannot be too soon performed), it is best to cut back all the old wood to a very low eye, in order to have long rods of entirely new bearing wood every year. This method, which includes a series of bearers, alternating with another set of growing successional branches, can be readily established with a young vine, trained gradually right and

left, horizontally, at the distance of ten or twelve feet: these parent stems become the foundation of all the future alternating vertical branches. But if an old tree already exist, which, through mismanagement, is sterile, the only way to bring it to a bearing condition, is to stimulate the growing principle (if the leaves appear weak and poor) by deep mulchings of manure; and by attending to the leading principle, that a *vine bears upon the green wood of the present year, produced from the light brown wood of the last year*, which also, if old wood be retained, should generally spring from two years' old branches. The two former conditions are indispensable; therefore, to develop bearing wood, so much of old ragged stuff must be cut out as will leave space for younger branches to produce vigorous shoots; which after the intervention of one season of ripening, will emit green, fruit-bearing shoots.

Fig-trees may be planted, but not pruned; nailing the branches if loose and pendant, and then stick branches of fir or other evergreen closely among them; or cover with mats during winter: 1838 killed nearly all the exposed wood.

Fruit, and fruit room. Collect all fruit that is ready to fall, but suffer it to fall rather than pluck either apple or pear that will not detach itself with the slightest force. Let apples lie together in heaps or baskets to lose moisture during a few days; then wipe each, and place them on shelves, or in boxes, jars, &c., where actual frost only is, and light can be excluded; a simple linen sheet is, we are told, a tried preservative when placed over or suspended in front of the shelves.

Sand was much recommended; and it is still a duty to cite the authority of Lindley thereon; although in our trials, the moisture of the apples pervaded the sand, and acquired a taint which diffused itself through all the fruit. Perfectly ripe apples "should be placed in casks or boxes as they are gathered, beginning with a layer of *thoroughly dry pit sand* in the bottom, then a layer of apples placed close to each other, then another layer of sand, just sufficient to cover the fruit and no more, and so alternately till the cask or box is full, finishing with a covering of sand." "The windows of the fruit room should be furnished with inside shutters, and kept closed, as it is found that fruit keeps longer and better thus, than when exposed to the light." He adds, "I have tasted the golden Harvey apple, and some others so kept, in as high a state of perfection in May and June as I ever saw the same kinds at any earlier period."

These remarks apply to the primer sorts; but of the subject of long keeping, the eastern apple or French crab, furnishes the best illustration, for it is not only unfit for use in March, but scarcely becomes mellow in June, and *has been* preserved into the second year: when ripe, it is delicious.

The Berkshire orchardists preserve their ordinary store in heaps, lying in dark corners of rooms, or dry cellars, covered with straw or fern; and here again we find Lindley saying, that apples in store should be looked over, the wet or mouldy ones wiped; rejecting of course the bad; while light and air are admitted: and if some clean dry fern can be had, the fruit should be laid upon it, reserving as much as will cover it over as soon as the frost sets in. *Fine dry fern* is by far the best thing on which to lay apples, and to cover them also, as it is perfectly sweet, and not liable to contract any unpleasant smell; and it keeps sound much longer than straw."

ON THE PRODUCE OF THE HARVEST IN SCOTLAND.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Aware of how much importance it is in order to assist in forming a just estimate of the nature of the crop, that you should be able to give your readers as numerous accounts as can be relied on from the various districts of the country, I make no apology for putting at your disposal the result of my observations upon the harvest and crop in this important district of Scotland, to which I may take occasion to add some general remarks upon the result of the harvest in the principal corn growing counties in this more immediate neighbourhood.

The district to which I allude, as falling more immediately under my notice, I may explain, comprehends the fertile Vale of the Tweed, embracing the equally productive lesser valleys of its tributaries, as far as the borders of the Cheviots on one side, and the broad rich main land, reaching to nearly the foot of the Lammarmuir on the other, and extending lengthways from the sea to the top of the vale, as it narrows near Hawick.

In all the lower, and by far the greater proportion of this rich country, then, it may be with safety said, *generally*, that cutting was concluded, with the close of the week which ushered in the present month, with the exception of beans and some trifling extent of spring-sown wheat, and late barley. A great proportion of the reaping in the earlier part of the district, indeed, was accomplished under the most favourable circumstances during the first and second week of September, which almost passed without a shower. Subsequent to this time the weather became unsettled, and even to cutting many interruptions were experienced, while from the frequency of the rain, very few opportunities for the next fortnight occurred, even to obtain occasional snatches at carting the crop to the barn-yard. The consequence was, that so late as the 28th day of September, fully three-fourths of the whole crop (and the remark may, it is thought, with truth be applied to nearly all the best parts of Scotland) remained *cut* in the fields. It fortunately, however, happened, that during this time the temperature was low, and alternate fair days generally intervened, so that indeed, little or no damage accrued to the corn thus so long exposed. The weather having now become boisterous, and very favourable for the drying of the corn in sheaf, great exertions were made, and all being ready to carry as far as cut before the rain, nearly the whole was safely and well secured in the barn-yard during the week ending with the 3rd of October. From the recurrence of rain little has been done since, but it may be safely assumed that throughout the district under review, not above one-third remains out, and the great part of this proportion is made up of the corn in the more elevated parts, the half of all which is still in the fields, about a fifth not cut.

From the very unfavourable season to which wheat was exposed while the blossom was being developed, and sometime subsequently, it shewed much affected by the yellow maggot, the larvæ of the wheat midge or *Tipula tritici*, the ravages of which appeared more or less evident in every field. The month of August, however, proved propitious to the proper ripening of this grain,

and it presented a very favourable aspect, in point of colour, when about being ready for the sickle. But from the very nature of the season at the critical period alluded to, besides, that appearance strikingly indicated such a result, it is too certain wheat must be deficient in quantity. So little has yet been passed through the thrashing machine, however, while it is evident there must be great diversity in the yield, from the very cause of the deficiency, it is yet scarcely possible to form any just estimate of the extent of the mischief. To venture an opinion I should say it cannot be less than 10 per cent. under an average crop. In quality, the greater part will be superior however to that of the few past years.

Barley, with scarcely any exception, presented an excellent appearance when growing, and it has cut up fully as favourably as that appearance promised. It is also said to yield well to the bulk of straw, and is more than usually good in quality, much of it, already been produced at market, weighing 57lbs. per bushel, and even in some instances more, while the common weight promises to be from 55 to 56lbs. The quantity must then be held as superior to an average, and this may be considered as applicable also to this crop in the neighbouring counties.

Oats are not so generally good as barley, being somewhat scant of straw upon the great proportion of hard lands, and in many instances where they gave great promise in the early part of the season, they were much blighted and thinned out by the cold winds, which prevailed to a great extent in Scotland generally about the end of May. Still, upon the whole, the crop is a good one, and showed better behind the reapers than was expected. The quality is also excellent, and giving due promise to this requisite, oats may be held a full average crop in this district, and I have reason to think in the neighbouring counties also.

Of beans few are grown here to make them a subject worthy of notice, but it may be observed that the season has been too moist, and withal late, to warrant the expectation of any thing like a full crop.

If, as I have reason to think, the above remarks will apply generally to the present crop of the whole kingdom—excepting that probably wheat may not be deficient in yield to the full extent presumed to be the case here—it would follow, notwithstanding the short supplies known to exist upon the eve of harvest, that the home growth of barley and oats will, especially of the former, be sufficient for the demands of the population for the present year, while wheat will, there is little or no doubt, come short of meeting the ordinary necessities of the country, assuming that the usual breadth has this season been sown. Compared with the few past years it may well be questioned however that this is the fact, when the very unfavourable nature of the weather during the whole of the usual season for autumn wheat sowing last fall is considered. No doubt the spring months were more than usually propitious, for in some measure compensating for this deficiency; but, besides that a great proportion of such soils well adapted for winter wheat is quite unsuitable for a spring crop of this grain, that sown in the spring months must, under the most favoured circumstances, in Scotland at any rate, be held as inferior to the extent of one-fifth of the produce at least.

But this leads me to notice a matter respecting

the deficiency of late years in the supplies of British wheat which it appears to me, from circumstances falling under my observation, well deserving of serious consideration and investigation. I know not how the fact may stand in England as bearing upon this matter, but I am certain that in this district, and others of the districts in Scotland, where wheat was extensively grown some years ago, a great deal less of this grain has of late been cultivated. In my own immediate neighbourhood not above the half of the wheat is now sown that was usual six or eight years ago; and in my own experience, upon a farm of nearly 1000 acres, when I had formerly 120 to 130 acres of wheat, I have of late sown only from 60 to 70 acres. Throughout the entire district, I can venture safely to say, that the shortcoming in breadth of wheat within the last five years, compared with the previous five, cannot fall short of a fourth part; and I have every reason to think that in the best cultivated districts of Scotland this falling off in the growth of wheat exists to a very considerable extent. It would be out of place here to enter into what I consider the cause of this serious deficiency, but it is a matter well worthy of serious inquiry, whether a similar change of system may not be prevalent, and gaining favour in some of the more important districts of England? In this way we may account otherwise, than by altogether attributing to the unfavourable nature of the seasons at home, the growing increase of the importations of foreign wheat for the last five years. No doubt these seasons have been more or less unpropitious to the growth of this grain, but I cannot help very much questioning from my own knowledge and experience of the productiveness of the wheat crop during these seasons, and having in view the facts and conjectures above stated, that there may be some other element in operation to account for this increasing deficiency besides the influence of the weather, which it may be of importance to ascertain. How this is to be best done, it is not for me to point out, but I think there have been many Government Commissioners named with less important matters to investigate; and without calling for such an expensive machinery for this end, I cannot avoid here suggesting that a series of questions, issuing from the Board of Trade, directed to a few intelligent agriculturists in some of the chief corn growing districts, would be quite sufficient to obtain all the information required; and, if the truth of my conjectures with regard to other quarters is correct, in all probability give rise to a check in many situations to the growth or prevalence of a system which would prolong the evil.

I am, Sir, your very obedient servant,

S. I. D.

Tweedside, Oct. 8, 1840.

P.S. I should have mentioned that the land formerly applied to wheat with us, is now devoted to the growth of Barley. And that there is an increase, (notwithstanding the influence and boasted reforms of temperance societies) to the enormous extent of nearly a third of the duties on the quantity of barley malted, in the period during the ten years ending in 1840, in comparison with the previous ten, just serves to give the greater probability to my conjecture, *that the cultivation of wheat has of late years very generally diminished* the quantity of barley, having, it is presumed from the above fact, in the meanwhile, very considerably increased.

REVIEW OF THE CORN TRADE DURING THE MONTH OF OCTOBER.

The last week in September and the first week of October were not so favourable for clearing the fields of what remained in them of the last season's crop as could have been desired, for the weather was generally wet, and unpropitious for harvest purposes. During the remainder of October, however, the weather became as favourable as the best friends to agriculture could have desired, and the whole of the crop has been gathered in excellent condition, and without the slightest damage, excepting that a very small quantity of oats, in some of the late districts, may have been partially stained, a circumstance, however, not of the slightest consequence. In our last review of the state and prospects of the corn trade, we hazarded the opinion, in opposition to that of others, of the wheat crop being fully an average one in quantity, and seldom, if ever, excelled in quality. Indeed, in the latter respect, we are persuaded that a difference of fifteen per cent., at all events, exists in favour of the last wheat crop, when compared with the growth of the previous season. As yet the farmers have not been very liberal in forwarding to market the produce of the last harvest, a circumstance so far favourable to the general interests of the community, as it enables the proprietors of foreign free wheat gradually to convert their property into money at remunerating prices, and at the same time the duty at present payable on foreign wheat is sufficiently protective to the British farmer against the entry for home use of any great quantity of wheat and flour for several months to come. At all events as the foreign wheat decreases in quantity, prices will become gradually more favourable to our home farmers, than they are at the time we are now going to press, and after the turn of the year the farmers' supplies of wheat in particular, will, in every probability, meet with a steady demand at fair and remunerating prices to the cultivators of our own soil. The flourishing condition generally of all the productive classes—the consequence of the flourishing state of the agricultural interest—causes, most fortunately, an increased consumption of all the necessaries, and of many of the luxuries of life, and therefore we may with great truth again assert that, so long as the farmers are paid for the produce of the fields fair prices, the wages of all descriptions of labour must continue to be proportionately high, and satisfactory to all who are interested in the well being of home industry, into whatever channel it may be directed.

Bread in London at twopence per pound is really cheaper than it is in Paris at half that price, for the wages of labour are at least twice higher throughout Great Britain than they are in France; and a Briton, therefore, can afford to consume white bread, whilst the ill-paid Frenchman must content himself with brown. A Londoner can pay for sufficiency of food, whilst a Parisian must content himself very frequently with short allowance. It must be perfectly obvious to every reflecting mind, and to every observer of the manners and customs of nations, that the superiority in England in the rewards of industry and labour over those of France mainly arises out of the legal protection given in this empire to every description of agricultural, commercial, and manufacturing labour. In England our laws are entirely protective, whilst

in France they are almost all prohibitory. Too heavy duties and prohibitory laws are universally the parents of smuggling. The consumption of British manufactured goods in France is excessive, because men generally will have those articles which the law entirely prohibits, and the consumption of illegally imported foreign spirits throughout the United Kingdom is likewise excessive, because the duty charged on them is excessive. When the importation of foreign manufactured silk goods was entirely prohibited in these kingdoms, it was the general fashion for every person to use them; but since the duty on them has been rendered only protective to our own manufacturers of similar articles, this department of British industry has already risen into great importance, and must continue annually to improve, until the exportation of our silken manufactures become a most valuable department of our foreign commerce. The money, till within these few years, which was annually expended in foreign silk manufactures, is now distributed, as wages, amongst the artisans and manufacturers of the United Kingdom, and in a certain degree enables them to pay twopence per pound for wheaten bread, whilst the wages of the same description of labour in France only afford half that price for the same quantity of bread, and confine the consumption there to half the quantity per head of that used in Great Britain. Dearthness and cheapness, we again repeat, are entirely relative terms. What may be considered extremely dear at the Land's-end may be extremely cheap in London, the value of every article being entirely regulated by the means of the consumers to pay; and these means can be best increased by giving due and proper encouragement to every description of industrious pursuits at home. Our corn laws are admirably adapted for the protection of agricultural labour at home, and for increasing the wages of labour amongst all classes in our society. To repeal them, for the sake of a foreign supply of grain, is perfectly unnecessary, for when foreign grain is wanted for our consumption, they have the admirable quality of virtually repealing themselves, as they did two months ago, and as they will continue to do, whenever the home demand exceeds the home supply. They form also a perfect barrier to the unnecessary exportation of British money in payment for foreign grain, whilst at the same time they open a wide channel for corn importation when our wants require foreign aid.

The repeal of the corn laws would be attended by the most disastrous consequences to the British empire generally. The agricultural labourer would lose his employment, and the manufacturer would be deprived of the home market for the consumption of his goods. Home improvements would be suspended, and productive employment would become scarce, and consequently the present wages for it could not be maintained. Polish serfs and American labourers would supply our consumption of grain, so long as any money remained in the country, far cheaper than it can be produced at home. To be sure, the golden age would arrive, in as far as it can be produced by low priced provisions, but it would be attended by all the wretchedness which accompany idleness and half wages, and would eventually disappear when the means were wanted for the payment of the

foreigners, by whose labour these provisions were produced. It is perfectly wonderful how any person of sound intellect could entertain the opinion of employing foreign lands, and paying foreign labourers, for the production of provisions which we have, in great abundance, the means of producing at home. A well employed population is the only wealth of a nation, and yet the anti-corn law advocates would deprive nearly one-half of the agricultural labourers of employment, and would at the same time reduce the other half to subsist on wages not half so high as they are under the existing system, insufficient as they apparently are for the real comfort of that most important class of the British community. Instead of inducing the surplus population, as it is now very improperly called, to emigrate to the Canadas, there to cultivate land of a far wilder description than any to be found in the United Kingdom, real patriots would point out to the capitalist the many millions of acres of waste lands at home, which are at present in a state of nature, and perfectly useless to the proprietors themselves, but which are perfectly capable of cultivation, and which the labour of man can easily render most productive. The marshes of Norfolk and Lincolnshire may, by money and labour, be changed into the new county of Victoria, and add at least one hundred and fifty thousand acres of the best cropping lands to the property of the British empire. But for the production of this benefit, the protection which the corn laws give to British agricultural pursuits is absolutely necessary, for the repeal of them would place an effectual bar to these vast improvements. In numerous other districts in Great Britain the means also exist, in great abundance, for the production of advantages of equal magnitude, whilst in Ireland they are nearly boundless. In that part of the empire there is a population in every way calculated for employment of this description, and under proper encouragement the banks of the rivers Shannon, and of the Slaney, the shores of Lough's Foyle and Swilly, may speedily and cheaply be converted into corn lands of a superior description, and may support and give productive labour to even double the inhabitants of those highly valuable portions of the empire for centuries to come. There are likewise in that country numerous morasses, which only require to be drained, to be rendered productive, and there is not one field already in a state of cultivation, which may not, and will not, be rendered yet doubly productive, by the great progress which the science of agriculture is everywhere making under the protective influence of the existing corn laws, and under the Patriotic Societies, which are everywhere rising up for the encouragement of agricultural science, and for improvements in the knowledge of the labours of the fields. From the banks of the Slaney forty thousand acres of land, by the application of less than four pounds sterling of capital for each acre, may, in a few years, be reclaimed, and will afterwards be worth a rent of about two pounds an acre annually, and from many other services of real wealth, equal benefits may be obtained at about similar expenses. The repeal of the corn laws would be but little benefit to our foreign export trade; indeed the experience of the last twenty years fully establishes the fact that foreign grain is chiefly paid for by the precious metals, and not by any increased exportations of the products of the British manufacturer; and therefore the advantage of trade cannot be held out as a recompense for the stop to agricultural improvement, which the repeal of the

corn laws would inevitably occasion. In some of our southern possessions the emigrants are charged with one pound per acre for their lands, before they quit their native country, and afterwards they are put to a great expense, and too much labour, in clearing them for the purposes of cultivation. Less labour, and far less expense per acre, would convert several millions of acres of land at present in a state of nature in the United Kingdom, into excellent grain fields, and the profits attending their cultivation would do much more than maintain those employed in these pursuits, and render emigration unnecessary. On lands now in a state of nature, if the labour of only a small portion of the agricultural workmen were applied to them, grain would in a few years afterwards be produced by them, to such an extent as would in future put a stop to foreign importations and render us a great corn exporting country. To encourage emigration therefore, for the purposes of tillage in our own colonies, is surely impolitic, when we have such ample means at home to employ the people in similar pursuits, but to open our corn markets to foreign grown corn would prevent any farther agricultural improvement at home. During last month the cotton and woollen lords began to shew the advantages which they would themselves take of cheap provisions, for in several places they deducted 10 per cent. from the wages of their artisans and labourers, because there existed a prospect of cheap wheat, in consequence of the present large crop. It was a matter therefore not to be wondered at, that the weavers of Blackburn expelled from their town the anti-corn-law lecturer on the benefits to the working classes, which cheap corn, resulting from a free corn trade with foreign states, would confer on them. They somehow or other prefer good wages, the result of good crops at home, to speculative doctrines on this subject. They know how matters actually are under the present system, but they know not what they may be under the proposed plan of a free trade in foreign grain, and they therefore desire no alteration in their present condition and future prospects, unless it be founded on practical, and not on theoretical improvements. During this corn season, at all events, the home consumption of manufactured goods must far exceed that of the two previous seasons, because the consumption of wheat must now for several months, be confined either to foreign wheats already paid for, or to the produce of the last splendid crop. The money, which, under less propitious circumstances, would have been transmitted to foreign states, in exchange for foreign grain, will remain in the British empire, will be applied to commercial and agricultural improvements at home, and will thus be the means of adding to the present quantity of productive labour, and consequently increasing the employment and the wages of all classes in the community. The decline which occurred in the value of wheat during the last month has already, we should think, nearly reached its limit, and during the remainder of this corn season the fine quality of the farmers' samples will command fair and remunerating prices. Whether any farther entries of bonded wheats will be required towards the close of the season is still a matter of much doubt, but the quantity cannot be of any consequence to the agricultural interest. We have had two bad wheat crops in 1838 and 1839, and the surplus of one good crop is not sufficient to supply the deficiency in the stocks of old British wheats occasioned by this untoward event. The season however has, in as far as it has yet progressed, been most favourable to field operations, and a considerable portion of the

winter seed wheat has been deposited in the land already in excellent condition. This is so far of importance to our future prospects, and the continuation of similar weather, in conjunction with the rapid progress which is now making in the science of agriculture, must change the hope into an almost certainty of our own growth of wheat being for some years now to come, amply sufficient for our consumption after the next wheat crop is gathered from the fields. At present the flourishing state of manufactures, of mines, and, in fact of all classes in society, must make the future demand for all the necessities, and for many of the luxuries of life, very extensive, and thus very materially add to the value of property of every description, the wages of labour amongst the rest. This is the consequence of agricultural prosperity, which, with the exception of some, whose only delight exists in the expression of discontent, is universally now acknowledged to be absolutely necessary to the public welfare, in so much as the home consumption of every article of home production is far more profitable than the foreign export trade can by any possibility be rendered, even by its conversion into one of barter.

The maltsters are now at full work, and the weather being cold and favourable to their operations, the consumption of the best qualities of barley is as extensive as, under the present system, it can be during the malting season. Still the demand is not commensurate to the supplies, which in all the leading markets are now forwarded for sale, and drooping prices and difficult sales are the natural consequences. The collection of nearly twelve millions sterling annually of public duties on manufactured barley is not so much complained of by the public in general, nor is it so detrimental to the barley producer, as is the mode in which these duties are collected. There is an old saying, and not the less true in consequence of its antiquity, that the last pound may break the camel's back, and this is exactly the case with the malt and British made spirit duties, for the manner in which they are levied confines the payment of them to only one portion of the people; that part of them we mean who have the cash to pay for the consumption of these two articles beyond their natural and intrinsic worth. During the last session of parliament, when an addition was made to the malt and home made spirit duties, we ventured to express our doubts of the efficacy of this mode of increasing the revenue, and these doubts have been more than confirmed by the October statement of the public revenue. That the consumption of beer is very much restricted no common observer of matters of this description can for one moment hesitate to believe, and that the heavy duty imposed on malt is the sole cause of this effect, admits not of the slightest doubt. The quantity of barley converted into malt since the duty was reduced from 35s. to 26s. per quarter, has increased from three millions of quarters to nearly six millions, but it is again on the decrease, because of the late imposition of five per cent on the latter charge. That the quantity of barley manufactured into malt does not keep pace with the increase of population is abundantly proved by the experience of the last ten years, and when six millions of quarters are divided amongst upwards of thirty millions of people, surely it must be admitted on all hands that the quantity consumed by each individual is either restricted to the lowest scale possible, or that millions of the people do not participate in the consumption at all. Unfortunately for the comfort of the community, and the

general prosperity, it is but too evident that the latter is the cause of the more than stationary state of the malt trade, but there is abundance of room to rectify the deficiency in the consumption of beer, and at the same time to render the malt duty more productive to the revenue than it has heretofore been. To employ the surplus capital of the empire to produce a fair annual income to the monied interest, is at the present moment as difficult as it is to provide for that portion of the people who are compelled to emigrate to foreign states for the cultivation of foreign fields. To reduce the malt duty at first to two-thirds of the present charge would in a few years render necessary double the quantity of barley now manufactured by the maltsters, and an addition of one million of acres of land would be required for the production of this increased quantity. Four or five millions sterling would reclaim in a few years from uselessness that quantity of land from the banks of our rivers and bays, and their rents would not be less than from thirty to forty shillings per acre annually. The wealth created by this, we may say, creation of new barley fields, would not only, by its after distribution amongst the industrious classes of society, pay for the interest of the capital embarked in their cultivation, but it would likewise be perfectly sufficient to provide for the expence of the increased consumption of beer. The productive employment which it would immediately create, would add largely to the present number of malt consumers, and the apparent loss of one-third of the duty on each quarter of malt manufactured under the present system, would be far more than reinstated in the treasury by the increase in the quantity actually consumed, which would from necessity arise from the reduction of the duty, and from the improved wages which the production of six millions of quarters of barley above the present growth, would scatter every where amongst all the industrious classes of society. The manner in which the present duty is collected is also injurious to the malting trade, and of not the slightest use to the treasury, unless, by its rendering the Excise Establishment more expensive, it gains a character for utility. The simple plan for collecting the malt duty is to place the malthouses under Her Majesty's lock, and to charge the duty on every quarter of barley placed into the warehouses, whether it be intended for malting purposes or not. Bonded foreign grain is perfectly safe in the keeping of the Custom-house, and English barley may be as secure under the keeping of the Excise without the vexatious practices of the interference of the officers of that establishment with the principle and science of the malting trade. To apply the same principle to malting whether the barley be from Norfolk or from Kent, whether the barley be grown from a clay or from a sandy soil, whether it be produced in the southern or in the northern parts of the Empire, is in every respect injurious to the public interest, and prevents, but too frequently, the malt from assuming that quality which is necessary to the purposes for which the manufacture of it is intended. An alteration in the Excise laws in this respect, and the liberation of the maltsters from absurd fiscal restraints would do much for the interest of the barley grower, and would permit the manufacturer of this article to use his knowledge and his capital to the best advantage, and the collection of the public revenue would be even more accurately performed than it can be under the present complicated system. The reduction to moderation of all the duties imposed on manufactured barley would, however, cause a great improvement in our internal policy. It

would be the means of furnishing wages to many thousands of industrious families more than can be supported under the present anti-national system. It would likewise reduce the amount of human misery caused by emigration to foreign states, and it would retain within the empire not only the capital which many of these emigrants take with them into foreign states and into many of our colonies, but it would also render unnecessary remittances of money to foreign agricultural districts in exchange for foreign grown barley. It would give proper encouragement to the cultivation of a part of our marshes and waste lands at home, and it would largely add to the wealth, and, consequently, to the real strength of the British Empire. If however the malt duty be heavy, that levied on spirits manufactured in England is most extravagant. Upwards of four hundred per cent. charged on the intrinsic value of proof spirits is destructive to public morality, and in every way injurious even to the revenue itself. It is the parent of smuggling, and consequently in it originate the many vices which universally attend the smuggler's progress. It does not limit the consumption generally of spirits amongst the inhabitants of England, though certainly it renders the revenue collected on them less by one half, than it would be under a more liberal system of taxation. It gives to the smuggler an advantageous and excellent market for ten to twelve millions of gallons of foreign made spirits duty free, and it limits the consumption of home made spirits in more than an equal degree. It is likewise injurious to the health of the community in as far as British made spirits are wholesome and of fine quality, whilst the trash smuggled into the country under the appellation of brandy and Geneva, is generally, in the extreme, hurtful to the human constitution. It also encourages the two extreme vices of drunkenness and teetotalism, in the centre of which is placed temperance, performing her divine duties. In Scotland, where the spirit duty is not much more than one hundred per cent. on its intrinsic value, temperance is yearly gaining ground on her true adversaries, and a small farther reduction would go far to establish her power on the firmest foundation, but the reverse is the case in England, and is the consequence of exorbitant duties, for more than half of the consumption is of foreign manufacture of the most deleterious description. To the rectifiers at home also the present state of the distillery regulations is injurious, in as far as they, like the maltsters, are not permitted to use their knowledge and science to the best advantage in the production of the articles to which their attention has been more particularly directed. Foreign and Colonial spirits can be introduced into consumption at any strength, which may answer the interest of the distiller, and suit the palates of the consumers, whilst the British rectifiers of neutral spirits are compelled by the law not to sell or manufacture any spirits unless they be, we think, 17 or 18 under proof. Dutch gin, and French brandies, are permitted to be sold at any strength, and we can discover no sound reason why equal advantages should not be extended to the spirits rectified on Holborn Hill by Mr. Young, or to the British made brandy of Mr. Stokes, in King-street, Snow Hill. This alteration would render British made brandy and gin even purer and more wholesome than they are at present; and, by placing the duty in England on a level with that in Scotland, the smuggler's trade would be destroyed, and millions sterling now remitted to France, Spain, and Holland, in payment for foreign spirits now consumed here, duty free, would remain in the empire, and would be

entirely employed in home improvements. A revision, therefore, of the regulations and duties, which at present are applied to the manufacturers of malt, and to the distillers and rectifiers of home made spirits, must be attended by consequences of the greatest importance to the agricultural interest, and must eventually be attended also by the deepest benefits to the people at large. Brandies, as pure as any ever imported from France, and far more congenial to the tastes of the British people, are already distilled from the extract of British barley, and an alteration in the duty, and some remission in the regulations imposed on the rectifier, must still improve their character. Although the duty charged on the importation of foreign spirits be 23s. per gallon, still the quantity smuggled at present is so large, that 5s. per gallon on the whole consumption in England, of foreign spirits, would yield more to the Treasury than the at present apparent high duty does; and was the charge per gallon on home made spirits placed only on a level with that actually collected on foreign spirits, their more national and constitutional character would very speedily cause them to supersede the use of French brandies and Dutch Geneva entirely, and the loss in the revenue, occasioned by the loss of the foreign spirit duty, would be most amply replaced in the Treasury by the increase in the amount collected on spirits of British manufacture. When whiskey, in 1827, was first admitted into consumption in England, for a length of time its introduction into general use was difficult, because it was new to the palates of the consumers; but since then its use has become general, and along with the immense improvements latterly made in the science of rectifying British gin, it has most materially limited the consumption of Dutch gin, and doubly re-paid the Treasury for the loss sustained in the duty previously collected on foreign Geneva. To give due encouragement to brandies, such as those which are now manufactured in King-street, Snow Hill, will, before long, entail on foreign brandies the same consequences as whiskey and British gin have occasioned in the smuggler's trade in Holland; and in short, the blindness of the laws alone, which are applied to the manufacturer of barley, limits the consumption of that article to much less than half the quantity which it would be, under a more liberal system of taxation; prevents the conversion of at least one million of acres of land, at present perfectly useless, into barley lands; and confines the great body of consumers to the smallest pittance possible. The present dulness in the barley trade in all the great markets of consumption, is mainly occasioned by our revenue laws, and the barley producer is compelled to limit the quantity produced by the same cause. When, as was the case last year, the barley crop proves a deficient one, he gains little advantage from any increased price occasioned by this circumstance, foreign barleys speedily supplying the deficiency; but when his produce is large, as it is this season, the trade cannot take off the surplus growth at any thing like fair prices, and thus the barley farmers suffer, instead of gaining, by a luxurious crop; the people at the same time remaining on half allowance of beer and spirits, and reaping no advantage from the bounties which Providence very frequently bestows on them by an abundant barley harvest. In consequence of these circumstances, the prices of barley continued declining during the whole of last month, but still as the quality is uncommonly fine, there is at present a probability that this crop, on the whole, will prove a valuable one to the barley farmers,—will obtain

for them fair, and at least remunerating prices—and will enable them to pay for, and consume, during the season, a considerably increased quantity of manufactured goods of every description, thus adding to the wages of labour, and to the real and solid wealth of the empire.

On the state of the oat trade at present no observations can be made which differ in any material degree from those which we have now ventured to make respecting wheat and barley. Not one complaint can be made, either against the quality or the quantity of the present growth of this article. The crop is most abundant, the quality is on the whole excellent, and it has been gathered, with a few exceptions in the late districts, in admirable condition. Prices have, however, not fallen in proportion with those of many other descriptions of agricultural produce, because they have not been subjected to similar causes for fluctuations. The oat crop is better protected from foreign competition by the corn laws, than barley and wheat are; and, although the importation of this article from abroad during the corn season, which has now passed away, has been extremely large, still prices have remained sufficiently remunerating to the home grower, and never in any violent degree prejudicial to the consumer. In Great Britain, for several years past, those lands which previously had been appropriated to the cultivation of this article chiefly, have been employed in the production of articles of a more valuable description, but any deficiency in the supplies, occasioned by this circumstance, has been most amply made good by the shipments which have been made to our great markets of consumption from Ireland. In that part of the empire, the crop of last season no doubt was deficient, even in a greater degree than it was here, and this circumstance rendered the application to foreign corn districts for supplies absolutely necessary. Still prices never became extravagantly high, and consequently the decline which occurred in them during the last month is neither so observable as that which has apparently taken place in wheat, nor is it of so much consequence. A fair duty in proportion to their value has been collected on all the foreign oats imported during the last corn season, which is more than we can say has been the case on the vast quantity of wheat which has been entered for home consumption during the same period. We have, however, at all events, a prospect, that for some time to come no foreign supplies will be required, for in Ireland, as every where else, the produce of this article this year has been immense, and will in every probability render the supplies during this season, in all the great markets of consumption throughout Great Britain, fully equal to the demand. This will be a most important benefit, which the last abundant harvest must bestow on the best interests of the United Kingdom; and in Ireland more particularly must this benefit be felt by its entire population. Already, shipments of oats to a considerable extent are making from thence to this country, the money in payment for which will remain in general circulation at home instead of being remitted to the continent, from whence it would never have returned. Money will, during the whole of this corn season, be distributed as wages amongst the Irish people, in proportion to the supplies of Irish grain and flour, which may be consumed here; and this is, at all events, one great advantage, originating in the union, which the empire reaps, and which the repeal of that measure would destroy; for Ireland, in that event, would be placed on the same footing as foreign nations

are, and the advantages of her coasting trade with Great Britain would be withdrawn. As matters are, however, the surplus of her abundant crop will be received here without any of the fiscal expenses which attend foreign commerce, and safe payment is a farther advantage which she must receive for her present splendid crops. Before many years can pass away, the progress which is annually occurring in agricultural science there, must, in every probability, produce a great change for the better amongst all classes in the Sister Kingdom. Capital, there, will increase by receiving it from Great Britain in exchange for her agricultural produce. The inhabitants generally will be fully employed in the vast improvements, both in agriculture and commerce, which must originate from the money which will be remitted this season from England to Ireland, instead of to Germany, for oats, and the British monied interest will, under circumstances so much improved, embark their property hereafter more freely than heretofore in the conversion of large tracts of land, at present entirely useless, into cultivated fields, and in various other pursuits, which confidence at present is alone wanted to render highly valuable to all interests in the United Kingdom. A few good crops, like this present one, are alone necessary to effect an entire alteration in the corn trade. They will be the means of our producing in our own fields corn sufficient to support in plenty our population, were its number doubled, and they will render future application to foreign nations for food perfectly unnecessary. Our prices of all descriptions of agricultural produce will be moderate, and generally will be regulated by the wages of productive employment. The large supplies of oats in particular, which we must receive during this season from Ireland, will tend to keep their value under prices, which can in any way encourage foreign importation. With beans and peas we have been fairly supplied during the month of October, but the demand has been in proportion, and no decline of much consequence has occurred in their value since our last report. The home produce of these articles is limited in its amount; and, unless after a fine harvest like the last one, the import duty is seldom too high to prohibit the admission of foreign supplies. As the stock of pulses from the growth of previous years may be said to be entirely exhausted, no very material reduction in its value can be anticipated, and, like everything else, there is much reason to hope that our farmers will, in this article likewise, be well remunerated for their produce of the present season. The potato crop is a most plentiful one, and the quality considerably superior to the growth of last year. Already prices are very moderate, and considering that this article is next in importance to wheat, the abundance, and consequently cheapness, of potatoes, is a great national advantage. In no previous season have the winter turnips looked better than at the present time, and there is a fine appearance of pasture in the grazing fields. The winter prospects therefore at present are cheering in the extreme, for in every probability there will be plenty of food of all descriptions, and abundance of productive labour, the wages of which will be amply sufficient for all purposes to which they can be applied during the whole of the current corn season.

The information received from the principal corn-markets abroad, during the last month, has neither been important nor in the slightest degree interesting. The Baltic ports will soon be closed against navigation until the next Spring, and a material fall must take place in the value of wheat previously, to

encourage purchases to any amount with the view of shipment to our markets. The orders transmitted into the interior of Poland this season are also far more confined in amount than they were last year, and the limits placed to the purchase prices are likewise much lower, for it is not at present very certain that any foreign supplies will be required here next summer, and it is the general opinion, at all events, that the duty payable on its entry for home consumption then, will not be entirely a nominal one. Caution therefore is used from necessity now in ordering wheat to be purchased abroad with a view to future consumption here, and prices must indeed be low there, to encourage any strong expectation of profits resulting from such speculations. From the Mediterranean the letters respecting the corn trade are equally uninteresting, and at present, at all events, there is not the slightest chance of any quantity of grain being forwarded to us from any of the southern parts of Europe, either within or without that sea, unless a very material alteration occurs in our prices here. From the United States of North America the latest letters are dated in the first week of October, at which time hope still existed there that our wheat crop had received damage, and that a possibility consequently existed that our markets would still require a part of the surplus growth in that Republic. Our corn laws continued to be the subject of much complaint among the American merchants, and also of no small portion of vituperation amongst the American land proprietors. To receive their produce under all circumstances here would extend their field profits by upwards of forty millions of dollars annually, and our protective laws are blamed, because they in part deprive our transatlantic brethren of such immense advantages. The ruin of British Agriculture, the reduction of the wages of labour by at least one half of their present amount, and to place out of employment altogether a great portion of our industrious population, weigh not in the eyes of foreigners when their interests are placed in the opposite scale, and there are theorists in the country who adopt the same principles. The schoolmaster, however, teaches better principles now amongst those who alone are interested in this subject, and theory has already yielded to practical good sense amongst all classes, except a few individuals who gain their profits in promulgating different doctrines. There is still a good deal of flour on the passage from the United States, but its entry at our present rates of duty would entail on its proprietors a very heavy loss of property, and whatever course may be adopted by the importers of it, its arrival can have no influence on our prices here.

CURRENCY PER IMPERIAL MEASURE.

OCT. 26.

	Per Qr.	Per Qr.
WHEAT, Essex and Kent, red ..	64 68	White.. 68 72 74
Suffolk and Norfolk	62 65	Do 65 70 72
Irish	50 60	Do 60 64
Old, red	66 68	Do 70 74
RYE, old	36 38	New 41 43
BARLEY, Grinding 30 32 34	Malting 38 40	Chevalier 40 42
Irish	25 27	Bere 24 25
MALT, Suffolk and Norfolk	64 70	Brown.. 56 60
Kingston and Ware	64 68	Do 60 70
OATS, Yorksh. & Lincolnsh., feed	27 30	Potato.. 29 32
Youghall and Cork black	21 22	Cork, white 23 24
Dublin	24 25	Westport 24 25
Waterford, white	22 23	Black .. 22 23
Scotch feed	26 27	Potato.. 28 29
BEANS, Tick, new	40 44	Old 44 48
PEAS, Grey	40 42	Maple.. 40 42
White	40 42	Bollers. 44 48 48
FLOUR, Town-made 60 — Suffolk 46	48	per sk. of 280 lbs
Stockton and Norfolk, 48	50	

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, Oct. 23rd, 1840.			AVERAGES from the corresponding Gazette in the last year, Friday, Oct. 25, 1839.		
	s.	d.		s.	d.
WHEAT	63	3	WHEAT	66	5
BARLEY	30	5	BARLEY	41	3
OATS	23	8	OATS	23	4
RYE	37	3	RYE	38	5
BEANS	44	10	BEANS	45	5
PEAS	43	5	PEAS	46	1

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Week ending						
Sept. 11th ..	65 4	35 3	28 7	39 8	47 0	44 2
18th ..	64 2	36 8	25 10	39 8	45 6	43 6
25th ..	64 1	36 2	24 10	37 7	45 3	43 7
Oct. 2nd ..	64 7	36 0	25 13	35 5	45 7	43 5
9th ..	64 0	36 5	23 9	25 9	44 2	42 10
16th ..	63 3	36 5	23 8	37 3	44 10	43 5
Aggregate Average of the six weeks which regulates the duty	64 3	36 2	25 4	37 7	45 4	43 2
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London	22 8	7 10	9 3	14 0	2 0	5 0
Do. on grain from British possessions out of Europe	0 6	2 6	8 6	0 6	0 6	0 0

SEED MARKET.

OCT. 26.

The seed trade was firm, Linseed and Rapeseed were held at fully former rates; Canary seed brought more money; Winter Tares were the turn dearer. In the value of other articles we have no alteration to notice.

PRICES OF HOPS.

BOROUGH, Oct. 26.

There is a good demand for bags and pockets of the growth of 1839. Choice pockets of this year's growth meet a ready sale. Duty 30,000l.

	E. Kent.	M. Kent.	Weald of Kent.	Sussex.	Farnham.
	s.	s.	s.	s.	s.
Bags, 1836	55 to 75	55 to 75	55 to 65	— to —	—
Pocks, 1836	55 .. 85	55 .. 85	55 .. 79	55 .. 75	—
Bags, 1837	none	none	none	none	—
Pocks, 1837	—	—	—	—	—
Bags, 1838	90 .. 116	90 .. 116	90 .. 102	—	—
Pocks, 1838	102 .. 130	100 .. 130	102 .. 116	90 .. 110	—
Bags, 1839	140 .. 180	140 .. 180	120 .. 140	—	—
Pocks, 1839	180 .. 220	180 .. 220	160 .. 180	140 .. 150	240, 300

WOOL MARKETS.

BRITISH.

OCT. 26.

	s.	d.	s.	d.
Down Teggs	1	2	1	2
Half-bred Hogs	1	1	1	2
Ewes and Wethers	0	11	1	0
Flannel do	1	0	1	2
Blanket Wool	0	5	0	8
Skin, Combing	0	10	1	2

FOREIGN.

CITY, MONDAY, OCT. 26.—The wool trade is steady, and there is a fair demand and supply of British fleeces. The imports of Foreign in the week ending to-day have been 733 bales, of which 356 were from Germany, 126 from Turkey, 53 from Russia, and 198 from the Cape of Good Hope.

PRICES OF SHARES.

No. of Shares.	IRON RAILWAYS.	Price per Share.	Div. per Share per Ann.	Shares.	MINES.	Price.	Dividend.
6,300	Birmingham and Derby Junction 1001 sh 61a5t			4,000	Alten 50t sh 12t pd		
9,500	Ditto and Gloucester 100t sh 90t pd 67a3t			1,000	Ditto New 15t sh 12t pd		
15,000	Bristol and Exeter 100t sh 50t pd 23a5t			10,000	Ando Mexican (iss. 5t pm) 100t sh		
9,300	Ditto and Gloucester 50t sh 2t pd			357,32t	Ditto Subscription 25t sh		
7,500	Cheltenham & Great West. Union 100t sh 55t pd 20a2t			10,000	Ditto Mint 25t sh 10t pd		
5,000	Chester and Crewe 50t sh 50t a0t			8,000	Greenavon Iron & Coal 50t sh 45t pd		
3,000	Clarence (Durham) 100t sh			2,000	Bolton 150t sh		
8,000	Dublin and Kilkenny 100t sh 2t pd			1,000	Ditto New 50t sh 20t pd		
64,000	Eastern Counties 25t sh 28t pd 9t a1t				Ditto Scrip 25t sh		
18,000	Edinburgh & Glasgow 50t sh 35t pd 27a4t			20,000	Bolivar Copper Company 15t sh 13a2t		
10,918	Grand Junction 100t sh 20t a0t		14t per ct	20,000	Ditto Scrip New 3t sh 4a0t		
10,918	Ditto Half Shares 50t sh 40t pd 8t		14t per ct	10,000	Brazilian Imperial 35t sh 20t pd		
10,000	Great N. of England 100t sh 50t pd				iss. 5t pm 13a14t		
25,000	Great Western 100t sh 65t pd 77t a4t			11,000	Ditto St. John Del Rey 20t sh 14t pd		
25,000	Ditto Half Shares 50t sh 65t pd 43t a4t			12,000	Brazilian Macanuba Cocos 25t		
	Ditto Debentures			20,000	British Iron Comp. 100t sh 55t pd		
8,000	Hull and Selby 50t sh 45t pd 45a7t			10,000	Cata Branca 10t sh 7t pd		
36,000	London and Brighton 50t sh 40t pd 26t a7t			8,500	Columbian 55t sh		
26,000	London & Croydon. Av. 14t 18s 6d 10t a0t			1,500	Ditto Scrip 11t sh		
6,334	Ditto Scrip 9t sh 10t a0t			10,000	Candonga 20t sh 8t pd		
20,000	London and Greenwich 10t sh 16t a0t		5s per sh	10,000	Copapo 20t sh 12t pd		
9,000	Ditto New 10t sh 16t a0t		1t per sh	4,000	English Mining Comp. 25t sh 14t pd		
80,000t	Ditto Debentures (various amounts)			20,000	General Mining Association 20t sh		
24,000	London & Blackwall 25t sh 20t pd 14t a3t				10t pd		
1,800	Leicester and Swannington 50t sh 55t			9,204	Hibernian 50t sh 11t pd 23a3t		
2,100	Leeds and Selby 100t sh		2t	5,739	Mexican Company 100t sh 58t pd 2a0t		
6,10t	Liverpool and Manchester 100t sh 184t		4t per sh	5,000	Minas Geras 20t sh 12t pd		
11,47t	Ditto Quarter Shares 25t sh 42t		0t per ct	14,400	Real del Monte registered Av. 1sh		
7,908	Ditto Half Shares 50t sh 86t		0t per ct		Ditto Ditto unregistered 2a5t		
30,000	London & S. Western, late London and Southampton Av. 38t 17s 9d 50t a1t		2t per sh	17,000	Ditto Loan (Notes) 150t sh		
6,000	Ditto Portsmouth Branch 50t sh 50t pd 30t a1t		5t per sh	5,000	Redinor (consolidated) 5t sh 4t pd		
25,000	London & Birmingham 100t sh 90t pd 150a8t		8t per sh	10,000	Rhymney Iron 50t sh 38t		2t per sh
25,000	Ditto Quarter Shares 25t sh 5t pd 24a5t		14t per sh	28,207	Unite! Mexican 40t sh 40t pd		
31,250	Ditto New 32t sh 24t pd 44a5t				iss. 2t pm 3a0t		
13,000	Manchester & Leeds 100t sh 70t pd 77a0t			5,281	Ditto Scrip 2t pd 3a4t		
13,000	Ditto Half Shares 50t sh 25t pd 29a30t			8,257	Ditto ditto (New) 5t pd 54a6t		
30,000	Manchester and Birmingham 70t sh 35t pd 19a20t			6,000	Wicklow Copper 5t sh 5t pd		
15,714	Ditto ditto Extension 70t sh 7t pd 34a4t						
10,000	Midland Counties 100t sh 75a5t ex new						
15,000	North Midland 100t sh 77a9t						
15,000	Ditto Half Shares 40t sh 40t pd 37a9t						
12,000	Northern & Eastern 100t sh 35t pd 24a0t						
3,762	Seyn and Wye Average 27t		218s p sh				
1,000	Stockton and Darlington Average 106t 13s 4d 250t		14t per sh				
28,000	S. Eastern and Dover 50t sh 28t pd 18t a10t						
6,000	York & North Midland 50t sh 64a0t		2t 2s p sh				
	JOINT STOCK BANKS.						
10,000	Australasia Bank (Chartered) 40t sh 50t		5t per ct				
5,000	Ditto New (Chartered) 40t sh 52a3t						
20,000	Bank of B. N. America (Chart.) 50t sh 40t pd 35a0t		0t per ct				
20,000	Colonial Bank (Chart.) 100t sh 25t pd 36a7t		5t per ct				
4,000	Ionian State (Chart.) 25t sh 10t pd						
30,000	London and Westminster Bank 100t sh 20t pd 22t ex d		6t per ct				
60,000	London Joint Stock Bank 50t sh 10t pd 12t a1t		5t per ct				
12,452	Do New, issued at 11 pm 50t sh 10t pd						
20,000	National Bank of Ireland 50t sh 17t pd		0t per ct				
10,000	Do. Provincial Bank of England 100t sh 35t pd 33a34t		6t per ct				
7,739	Do. New 20t sh issued at 2t 10s pm						
20,000	Provincial Bank of Ireland 100t sh 25t pd 44a1t		8t per ct				
4,000	Ditto New 10t sh 17a1t		8t per ct				
20,000	Union Bank of Australia 22t pd 20a0t		36s pr sh				
12,000	Ditto New 25t sh 5t pd 9a1t						
6,000	Union Bank of London 50t sh 5t pd 44a1t		5t per ct				
50,000	West of England and South Wales District Bank 20t sh 12t pd		6t per ct				
	MISCELLANEOUS.						
	10,000 Anti Dry Rot Company 18t sh 34t						
	10,000 Assam Tea Company 50t sh 12t pd						
	1,040 Auction Mart 50t sh						10s pr sh
	10,000 Australian (Agricultural) 100t sh 28t 2s pd						30s pr sh
	8,600 British Rock and Patent Salt 50t sh 35t pd 13t						1t
	10,000 Canada Company (Chartered) 100t sh 32t pd 32a3t						6t per ct
	5,000 Droitwich Patent Salt 25t sh 21t						25s pr sh
	2,700 Equitable Reversionary Interest Society 100t sh 50t pd						4t per ct
	20,000 General Steam Navigation Company 15t sh 14t pd 25a1t ex d						18s pr sh
	1,800 Ditto Cemetery (Chartered) 25t sh						0t per ct
	1,800 Ditto New (Chartered) 25t sh						0t per ct
	2,100 Hungerford Market 100t sh 32t						20s pr sh
	24,800 Ditto Debentures (var. amounts) 100t sh 39t						5t per ct
	3,000 Kent Zoological and Botanical Garden Company 10t sh 4t pd						
	5,000 London Cemetery (Chartered) 20t sh						4t per ct
	1,800 London Corn Exchange 37t pd 21a2t						1t per sh
	2,000 London Commercial Sale Rooms Average 73t sh 26t						1t
	2,400 London and Westminster Steam Boat Company 10t sh						5t per ct
	20,000 Mexican and South American Company 10t sh 7t pd						10s
	20,000 New Brunswick Land 100t sh 50t pd						
	4,000 New Zealand Land Comp. 25t sh 23a4t						5t per ct
	5,387 Reversionary Int. Society 100t sh 10t						5t per sh
	14,400 S. Australian Comp. 25t sh 20t pd 20a0t						8t per ct
	3,000 South Metropolitan Cemetery (Chartered) 25t sh						
	4,000 Thames Tunnel 50t sh 10a1t						
	200,000t Upper Canada Loan						5t per ct
	200,000t Ditto						5t per ct
	10,000t Van D. Land (Agricultural) Chartered 100t sh 18t pd 8t						6s pr sh
	5,000 West London and Westminster Cemetery 25t sh 19t pd						



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Two Riders on Horseback
The artist's name is written in the top right corner of the engraving.

THE FARMER'S MAGAZINE.

DECEMBER, 1840.

No. 6.—VOL. II.]

[SECOND SERIES.

PLATE I.

The subject of the first Plate is a West Highland Bull, the property of Mr. Grant, of Ruthven, Banffshire, exhibited at the Meeting of the Highland Agricultural Society at Aberdeen, in October last. A Prize of Fifteen Sovereigns was awarded to Mr. Grant for this animal, which commanded much attention as a specimen of the West Highland breed.

PLATE II.

This embellishment represents that moment of excitement, when the fox having broken cover, has been hallooed away, and the hounds are dashing with headlong impetuosity to get on his line. Beckford says truly that "it is the dash of the fox-hound which distinguishes him from the harrier," and he might have carried the observations to a greater extent, and added, from every ramification of the hound fraternity. Quickness, decision, impetuosity, and dash, are the characteristics of fox-hunting.

ON LUCERNE.

I have before me the letter of "W. S." which appeared October 26, p. 8, col. iv., and should have replied on the spur of the occasion, had time and pre-occupation permitted. He asks, "When is the proper time to sow it, and what sort of land—the price of seed—has it been proved to be superior to vetches, as food for horses?"

I have cultivated lucerne, and attentively observed its progress, productive quality, and remunerative return during ten seasons; but previous to entering into detail of my own actual experiments, I will copy an article verbatim, which, in 1835, attracted my attention. It will, as far as assertions go, do much to meet every enquiry of "W. S.," but as no one can vouch for the abstract truth of what he peruses, I shall not offer any other comment than that which the subsequent statement will supply. The locality speaks much for its favour:—

"Having well cleaned and manured the ground, early in April I sow the lucerne seed in drills, nine inches apart, which with a little address is very quickly done. As soon as it was fairly up, I sowed the ground with as much soot as I could collect, to protect it from insects.

"The first year it yielded two good cuts, the first about the beginning of July. Cutting it then seems to strengthen the root more than if at first permitted to grow longer. I was not aware of the

OLD SERIES.]

advantage to be gained by permitting the crop, in subsequent years, to run to flower once during each season, until it was kindly pointed out to me, but I am now a convert to that plan.

"My piece of ground measures 66 feet by 85 feet, equal to 20 rods Kentish measurement. The lucerne is four years old; the soil is an elevated, hungry chalk, with an eastern aspect, and too much shaded by trees. From this small spot I have had five good cuts this dry season (the second being permitted to flower well) which produced a good supply for two saddle horses almost every night, from the 28th of April until the 24th of September, when we finished. And I can add that, instead of rejecting it as autumn advanced, they eat the last with as much avidity as the first.

"Every time it was mown, the fresh cut surface was hoed clean, and the weeds raked off immediately; consequently, it had five hoeings and raking during the season; and every year in November, I have covered the surface with a thick coat of well-rotted horse-dung. Where it was thin I tried to improve the crop by transplanting, but have not been able to succeed with even a single root. I also sowed fresh seed in the bare spots, which came up well, but generally was choked by the quick growth of the older plant. Where the crop is thinnest, the roots spread out more; and in these parts the flat top of the root, from which the stems spring up, in some instances measures six inches in diameter. It is necessary in

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[No. 6.—VOL. XIII.

mowing *not to cut too low*, as the spreading tops of the root are liable to be partially cut off and destroyed." (By a gentleman of Greenhithe, Kent.)

I happen to have by me, the details of my own experiments to the date of July 1835, and therefore need not trust anything to mere recollection. These details I shall adduce after premising, that from 1819 to 1822, I resided on the north east side of the Isle of Thanet, in Kent, where I became conversant experimentally, and by observation, with the importance of lucerne to the grazing farmer in those chalk districts, where the nature of the soil, and the paucity of rain prohibit the cultivation of meadow grass. Lucerne, sainfoin, and clovers, are the only efficient green substitutes for the pasturage of the inland counties, in which kindly loams and fertile clays abound.

I subsequently resided seven years in the west of Wiltshire, where, though the chalk-downs extend from Salisbury Plain to Westbury, Warminster, and Mere, in one almost uninterrupted stratum, hardly a trace of lucerne was visible.

Occasionally, one met with a patch of half cultivated sainfoin, (French grass, as it is there called,) but broad clover was found everywhere.

In the year 1830, I perceived that in parts of Berkshire the farmers knew something of the plant, but always complained of the trouble it occasioned; but Thanet was in my recollection, and finding that the soil of the locality was a good though gritty loam over a deep bed of chalk, I determined to resume the practice which was so excellent in Thanet, and soil my milch alderney upon lucerne. This object as respects the lucerne was pursued till 1835, and not by labourers, but by the members of the family; so that, heart and hand were engaged, and *facts* realized. The history of plot 1 was thus noted. In 1830, a portion of a field, previously unfertile, having been the site of some out-premises where rubbish was thrown, was trenched two feet, and in doing this, stones, glass bottles, brick-bats were found; and what was worse, vast roots of elm that traced their way from a neighbouring plantation, had to be grubbed up. Much chalk had also been thrown in, and this was found in detached patches. During the trenching, all the rubbish was cleared away, the chalk distributed over the staple earth, which was really a fine rich loam, and as a trench was cleared, what grass turf could be collected was inverted at its bottom, and sprinkled with salt. This done, the mixed soil was thrown in, and thus proceeding, a plot was finished, and sown with stubble turnips. Then followed a trial of the puffed symphytum as *purimum*, and subsequently white clover; every crop was rich, though little manure was used.

In 1832, after clearing and simple digging, a portion was sown with lucerne seed in drills, two inches deep and about ten inches asunder. This seed cost 1s. 2d. per pound; subsequently, I have paid 1s. 3d. and 1s. 6d.

In 1833 another portion was sown in the same way; and this latter extended to land that had not been so deeply laboured, it being beyond the limit of the 'out-premises' before named. Both sowings were effected early in April.

The first season it was cut over soon after Midsummer, and this, not in one operation, but as wanted for the cow. The season of 1833 was showery, but warm, and both the year-old and yearling lucerne sprouted vigorously, inasmuch

that it was cut four times; nor did we desist till November; the herb grew, and remained green during the winter. After every cutting the ground was deeply stirred, either with the hoe or mattock, by which it was kept clean and open. Cow-wash drained from the shed, and soap-suds were occasionally thrown over parts of the plot, (but I doubted the result, and do so still,) and once in December 1834, the surface was top-dressed with manure. In that season we had taken six complete cuts, the herbage of each being a foot high, besides a partial one of the strongest growth. This fine yield, which produced a corresponding good result in the dairy, would argue that *chalk* is of essential use to the plant; but the second greater experiment threw some doubt on the inference.

Plot II. A small piece of land, measuring about 40 poles, had been prepared by a similar trenching, turfing, and salting, for an orchard of dwarf standards; but finding the benefit of the lucerne, and the trees standing remotely apart, 30 poles were devoted to that herb, and seed sown in drill twelve inches apart in *March and April*, 1834. The plants of the earlier sowing, (though frosts followed) rose more regularly, and were in better order than those of the later sowing; and what is relevant to one of the points under enquiry, those plants were in the finest condition in a part of the ground where no chalk in lumps was discovered: yet some allowance must be made for the effects of drought which occurred soon after April.

When the rains came on, all the seed rose well, and the plot was mown *six times*: we desisted in October, and the plant became again so green, that a six-inch cutting could have been taken, though at the risk of mischief at that late season.

Thus loam, deep loam, which yields no sign of stratified true chalk, or bastard *marly* chalk at the depth of thirty inches, supported lucerne, and rendered it highly prolific for a long period: though it must be ceded that chalk is *bona-fide* the substratum, with alternation of gravel at very varying depths. One note I find, which must not be overlooked—it refers to the hardihood of lucerne. "The coldest north-east wind in recollection set in April 15, 1835; ice, one-fourth inch thick, formed every night, and the mercury receded to 20°. This has checked a growth which promised to have attained fifteen inches by the last week, if a few warm showers had been given in lieu of the present parching, eastern drought, April 29, 1835."

Thus far the register to the period when the cow became no longer an object, and the future crops were disposed of.

I have subsequently had the row fork-dug twice; removing all the grass and weeds just before the first growth of Spring; and twice sheep have been fed on the plots late in the year. A neighbour in 1837 took undue advantage, and turned in so many that in two or three nights every trace of verdure disappeared, and I believe that many crowns were obliterated. I have also desisted from digging or hoeing, because the experiment is complete in every way, and I intend to clear the ground.

Of general results since 1835, I can testify that four parties have purchased the cuts of April, July, and September for horse-food, with satisfaction, and forty rods have brought a return of 3*l.* yearly.

When cut according to my plan, for a

milk cow, by the time the plot was cleared, the opposite end was in a state to requir the scythe again; because we always gave a preference to lush and tender herbage; hence, though I had seen flower, and in fact could not consume the plant fast enough, I had in 1835 acquired no substantial proof of good or evil, as a result of flowering. Subsequently however, they who purchased for horse food, always waited to obtain the greatest bulk of herbage, and the whole piece was covered with bloom. Certainly the plant is not so strong and full on the ground as it was, and grass has intruded upon it. One portion is eight years old, the other is in its sixth season, and both are left either to be overgrown, or dug up for potatoes.

But the experiment is decisive, and I can, after five years further observation, (even allowing for injury by sheep, and removal of orchard trees), confirm what I expressed in 1835, that the plant in *loam* is better than the one in a chalky plot; therefore I incline to infer that chalk is not indispensable. Though the converse of that inference is unquestionably true, namely, that *lucerne* is the grand staple and support of chalk districts, one which supplies the absence of grass, and therefore cannot be dispensed with in localities near the sea especially, where the chalk lies under a very shallow stratum of earth.

One prospective observation is due. *Nitrate of soda* should be tried as top-dressing, and I intend to apply it to the extent of 14lbs. on 20 poles of surface, without hoeing or forking. At present, much as grass is said to interfere, I can show detached patches in a meadow where trees had been grubbed up, and the surface sown with *lucerne*, yet the plant remains in full vigour after a lapse of four seasons. J. T.

CHARTHAM FARMERS' CLUB.

FIRST REPORT—NOVEMBER, 1840.

Chairman—ROBT. LAKE.

Vice-chairman—P. MARTIN.

Treasurer—W. PIDDUCK.

Secretaries—PLOMER MOUNT, JUN., and
FREDERICK SLATER.

GENTLEMEN, — Your committee having been appointed to draw up a report of the proceedings of this society, deem it advisable to lay before its members the minutes of the various subjects which have at different meetings been submitted to their consideration.

The first subject that engaged the attention of the club was "the best method of winter feeding of sheep on arable land." After an animated and interesting discussion, in which several members took part, the meeting came to the following resolutions:—

1st.—That lambs ought to be first put upon "ripe cole, turnips," or a mixture of both, and in case the turnips were not ripe, they should be picked a day or two previous to feeding.

2d.—That for this description of sheep, a run upon gratten or ley, with at the same time a narrow slip of the cole or turnips, is highly to be recommended; and it is also advantageous that the fold should not exceed in number 200. Dry food to

be given out at all times, more especially in cold or wet weather.

3d.—That, for the general feeding of sheep, Gardner's turnip cutting machine is considered preferable, the expense of using which has been found to be about 1s. per score of sheep per week.

The next subject that engaged the attention of the club, was "the best method of cultivating turnips, and the best sorts." On this subject an interesting discussion ensued, relating to the several powers and properties of the different manures, as adapted to different soils, upon which the meeting came to the following resolutions:—

That an early and continued ploughing is very necessary for the cultivation of the turnip, the manure being carried out upon the lands immediately before the turnip season, and when placed in or upon baulks, care should be taken to place the seed upon the manure.

That artificial manures are found highly beneficial on certain lands, especially fish, bone dust, and carbon, varying in their effect according to the qualities of the soil on which they are placed.

For the first feeding the tankard sort is to be recommended, followed by the globe, red or green, concluding with the Swede.

The next subject under consideration, was "on the expenses of keeping a team of horses, and the number of acres each horse should cultivate."

Several members furnished the meeting with their respective calculations, and much information was elicited, it being considered a subject of the greatest importance to the farmer, as one of his heaviest items of expenditure. After many long and able arguments, the subject being twice postponed for further consideration, the meeting made and approved the following calculations:—

FOUR HORSES.

	£	s.	d.
1½ cwt. of sanfoin per week, for 32 weeks, at 5s.....	12	0	0
4 bushels oats do., do., 22s.....	17	12	0
2 do. beans do., do., 36s.	14	8	0
Barn meat at 1s. per day	18	5	0
3 acres of clover at £6.....	18	0	0
4 weeks varying food, 4 bushels of oats per week, at 22s.	2	4	0
Expense of feeding.....	82	9	0
Servants' wages	17	0	0
Board of ditto	41	12	0
Tradesmen's bills.....	22	0	0
Interest on capital.....	16	0	0
Loss of horses, &c.....	12	0	0
Total	£191	1	0

It was the opinion of the meeting that the cost of keeping a team of agricultural horses, would necessarily amount to the sum of £191 ls. Also that the work of each horse should be after the ratio of 25 acres of land, 100 acres being cultivated as under:—

	Acres.
Arable.....	84
Pasture	10
Hops	3
Yards	3
4)100 for four horses.	
	25

The different qualities of manure, as beneficial to different soils was next discussed. The several statements made to the meeting agreed in the main, the difference of opinion principally arising from the various qualities of the lands of different occupiers.

The following statement was considered accurate. Thus dividing the soils.

1	2	3	4	5	6	7
Clay.	Chalk.	Sand.	Gravel	Loam.	Bog.	Heath

MANURES CALCULATED FOR

No. 1, CLAY.—Chalk or lime, according to circumstances. Chalk is two or three years before its effects are visible; but conceived to be the most certain of the two. Lime is effectual the first year, if the soil has sufficient vegetable matter in it, and being much *lighter*, is better calculated for long carriage. One waggon load of 44 cwt. 2 qrs. 8lbs. being sufficient for an acre, while four of chalk (276 cwt.) is required.

No. 2, CHALK.—Every attention to green crops fed with sheep should be given, as by far the best and cheapest manure for this soil. Tares sown on this soil after harvest, fed off early in the spring, and then ploughed and sown with turnips, is well adapted to renovate chalk. Sheep when feeding should have oil-cake or corn, to render this mode quite complete.

No. 3, SAND.—The observations on No. 2 will also here apply, but a useful addition may be made in the application of clay and chalk.

No. 4, GRAVEL.—Similar to No. 3, which, with Nos. 2 and 7, are peculiarly adapted for all light artificial manures, such as bone dust, ashes, gypsum, soda, saltpetre, carbon, soot, salt, &c., &c.

No. 5, LOAM.—This is by far the most preferable soil on every account, the chief point being to keep it free from weeds and attend to the course of cropping.

No. 6, BOG.—First draw out the water, then render the land more adhesive and close, which is best done by chalk, or retentive heavy earth, it being chiefly composed of vegetable matter. Farm-yard dung, or green crops fed off, are less required.

No. 7, HEATH.—See observations of Nos. 2, 3, 4; chalk and lime being indispensable.

OBSERVATIONS.—Farm yard dung in mixhills should be carted on, if required to remain in mixhills long, and when finished covered with a layer of mould or chalk; but if otherwise, it should be carefully thrown up, well mixed, and covered with mould; neither should be turned long before using, (say fourteen days), because the covering of mould can seldom be repeated, by which omission the vapour escapes; every farmer would do well to consider where he will place his mixhill, as in most instances one horse in a cart, either in making the mixhill or carting it therefrom is fully sufficient.

The next subject was "On the best method of cropping land." A lengthened discussion ensued, the contention lying between the comparative advantages of a four or seven crop system; this meeting deemed it requisite to enter into a statement of the relative advantages of the two, dividing the district into an inferior and superior kind, and comparing the two systems together.

ON THE INFERIOR SOILS OF THE DISTRICT.

THE FOUR-COURSE SYSTEM.

	Value.
	£ s. d.
1. Turnips.....	2 10 0
2. Barley or oats—barley, 4 qrs. at 32s.	6 8 0
3. Seeds, beans, or peas—half seeds..	1 5 0
Half beans, 2½ qrs. at 32s.....	2 0 0
4. Wheat—3½ qrs. at 56s.....	9 16 0
	4)21 19 0

Produce per acre..... 5 9 9

THE SEVEN-COURSE SYSTEM.

	Value.
	£ s. d.
1. Turnips.....	2 5 0
2. Barley or oats—barley, 3½ qrs. at 32s.	5 12 0
3. Seeds, beans, or peas.....	2 5 0
4. Wheat—3 qrs. 2 bush. at 56s.....	9 2 0
5. Beans, seeds, or peas—beans, 2 qrs. at 32s.....	3 4 0
6. Wheat—2 qrs. 4 bush. at 56s.....	7 0 0
7. Oats or barley—oats, 4 qrs. at 22s..	4 8 0
	7)33 16 0

The seven-course.... 4 16 7
The four-course ... 5 9 9

Difference in favour of four-course.... 0 13 2

ON THE BEST SOILS OF THE DISTRICT.

THE FOUR-COURSE.

	Value.
	£ s. d.
1. Turnips.....	3 0 0
2. Barley—5 qrs. at 32s.....	8 0 0
3. Seeds and beans—half seeds.....	1 15 0
Half beans 4 qrs. at 32s.....	3 4 0
4. Wheat—4½ qrs. at 56s.....	12 12 0
	4)28 11 0

The four-course 7 2 9
The seven-course.... 6 15 2

Difference in favour of four-course.... 0 7 7

THE SEVEN-COURSE.

	Value.
	£ s. d.
1. Turnips.....	2 12 0
2. Barley—4½ qrs. at 32s.....	7 4 0
3. Seeds.....	3 0 0
4. Wheat—4 qrs. 2 bush. at 56s.....	11 18 0
5. Beans—3 qrs. at 32s.....	4 16 0
6. Wheat—4 qrs. at 56s.....	11 4 0
7. Oats—6 qrs. at 22s.....	6 12 0
	7)47 6 0

£6 15 2

It was therefore resolved from the foregoing calculations, that the four-course system was of most benefit to the agriculturist, more especially upon the inferior soils.

The next discussion entered into by the society, was "the number of labourers required to cultivate 100 acres of land, the same not being farm servants," when it was decided that three outdoor labourers were necessary.

"The relative weight of beans, peas, oats, and oilcake, as applied to the feeding of sheep," was

next brought before the meeting. This subject was considered to be of much importance to the agriculturist, and to demand his greatest attention, as the weight of the quantity of corn that can be purchased for the same amount as its relative value in oilcake is found to be so much greater, the carriage also being saved.

It was stated at the meeting that many practical agriculturists had fed upon the corn, and decidedly preferred it to the cake. The meeting, however, came to no resolution upon the matter, alleging that it was premature to give a definite opinion upon its merits without a trial, firstly, of the improvement of the animal fed, and secondly, the produce to be derived from the land after each separate kind of feed.

In order, therefore, to derive as accurate a comparison as possible, several members offered to try the merits of the different foods of corn and cake, as regarded relative value, and to furnish the society with the results.

The meeting then proceeded to the next discussion, "on reaping corn." It appeared to be the unanimous opinion that mowing thin, or bagging stout wheat, was much to be preferred to reaping, not only being more expeditious, but also as the means of obtaining a much greater quantity of straw, and thereby increasing the value of it (a very material object on very many light farm lands in this district). It was also contended that the corn was less liable to be damaged in a wet harvest, particularly where seeds or rubbish are grown.

CALCULATION OF THE EXPENSES OF THE DIFFERENT MODES.

BAGGING.		MOWING.		REAPING.	
s.	d.	s.	d.	s.	d.
12	0	10	0	12	0
1	0	1	0	3	0
to clear stubble.		to clear stubble.		to clear stubble.	
13	0	11	0	15	0
1	9	1	9		
{ 6d. per qr. extra thrash- ing 3½ qrs.		{ 6d. per qr. extra thrash- ing 3½ qrs.			
14	9	12	9		
7	0	7	0		
{ Value of straw above reaped.		{ Value of straw above reaped.			
7	9	5	9		
1	0				
{ for making better work than mowing.					
6	9				
per acre.		per acre.		per acre.	

On the subject of "Mending parish roads" the meeting unanimously agreed—

That every parish road should have a fall of something more than half an inch to every twelve inches; that no stones should be placed on roads except between the first of November and the first of February; the lowest side being against the turn as far as practicable; the work to be done by the piece, and no stones to be more than two inches in diameter.

The next subject that was brought before the meeting was one of considerable importance to the agriculturist, being "On the best method of preparing for each succeeding crop." It gave rise to much conversation, and afforded the members an opportunity of deriving much useful information from the arguments there adduced—the difference of opinion mainly accruing from the nature of the different qualities of soil cultivated in this district.

The following plan was approved:—

To spuddle all the land as soon after harvest as possible, and repeat it a second time if the weather will permit, partially or otherwise (this was considered by the meeting to be of the utmost importance to the interest of the agriculturist).

FOR WHEAT ON CLOVER LEV.—Manure, plough, machine, and sow.

FOR WHEAT ON BEAN GRATTEN.—Upon light soils and dry ears, machine on the spuddled ground, or drill furrows and sow it. On other soils, plough, shim, broadshare, or creese, and sow. If the land is wet, and the season advanced, it must of necessity plough and sow.

FOR BEANS.—Carry out dung when ready, the weather permitting; drill, and if necessary, heal with the plough, taking care to harrow at proper times.

FOR OATS AND BARLEY.—Plough, broadshare, machine, and sow on the furrow, fallow-plough it as opportunity permits, taking care not to have the same prepared too wet.

FOR TURNIPS.—First plough the land *deep*, stir the land in the spring, then baulk it three times; plough it once afterwards, baulk it, plough the manure on the baulk, and sow the seed on the manure. (Consider that dung arising from the produce of the farm to be capable of manuring the land over once in three years; the surplus manure, as before mentioned, to be purchased).

Your committee have deemed it desirable to bring the duties of the club to a close before the expiration of the year, in order to co-operate more advantageously with the kindred clubs of the vicinity. No correspondence has been yet entered into, the committee being desirous to establish the club upon a solid basis ere they proceeded upon so important a feature of their business.

In closing the report, the committee have the satisfaction of congratulating the members upon the success which has marked its progress. Scarcely seven months have elapsed from its formation, and in that brief period fifty-seven members have been enrolled.

In relinquishing to you the trust confided in them, the committee have to acknowledge with gratitude the zealous and ready aid they have invariably received. It is a source of great pleasure to them to observe, that in the meetings of this description, the agriculturists of the kingdom are keeping clearly in view the great objects which have called them into existence. They appear in all quarters united as friends,

labouring not only to promote the advancement and improvement of agriculture, but as true British yeomen to secure the welfare and prosperity of "our native land."

For the Committee,

FLOMER MOUNT, JUN.,

Canterbury, 1840. Hon. Secretary.

REPORT OF THE YOXFORD FARMER'S CLUB FOR 1840.

The third annual meeting of the Members of this Society was held at the Tuns Inn, Yoxford, on Friday last, when a larger party mustered than was anticipated, from the circumstance of there having been on the same day several similar meetings in this neighbourhood, which not only presented a greater shew of roots (which, however, was still very respectable, though, from the general unfavourableness of the season, not of so good a quality as last year), but also deterred many members from attending, who living in the more immediate vicinity of other root shows were unable to be present at this.

The exhibition of the roots took place in the yard of the Tuns Inn; and an increased number of candidates to those of last year enrolled themselves in the list of competitors for the Sweepstakes, the decisions of the Judges for which follow here, in their respective order:

CLASS 1ST.—For three of the best roots of purple or red beet—18 competitors. Prize: Mr. James G. Cooper, Blythburgh Lodge.

CLASS 2ND.—For three of the best roots of white or yellow beet, either long or globe—3 competitors. Prize: Mr. Thomas Man, Darsham Hall.

CLASS 3RD.—For three of the best roots of Swede turnip—9 competitors. Prize: Mr. Joseph Foulham, Westleton.

CLASS 4TH.—For three of the best roots of white pudding turnips—5 competitors. Prize: Mr. Samuel Cross, Peasenhall.

CLASS 5TH.—For three of the best roots of white loaf turnips—5 competitors. Prize: Mr. John Rous Cooper, Westleton.

CLASS 6TH.—For three of the best roots of Scotch pudding turnips—3 competitors. Prize: Mr. Robert Asker, Yoxford.

CLASS 7TH.—For three of the best roots of round Scotch turnips—no competition.

Several specimens were also shewn as extra roots, some of which, it will be seen, were very highly commended by the Judges.

Three half-bred Suffolk short-horns, years old, were at the same time exhibited by Mr. John Rous Cooper, of Westleton, which by their size, symmetry, &c., fully bore out the conclusions arrived at by this Club in their discussion last February, on the subject of weaning and rearing neat cattle, and improving breeds, &c. (Vile report, month February.)

THE DINNER

Was provided by the well known hostess of the Tuns Inn, Mrs. Barnes, in her usual bountiful style, and appeared in its "*tout ensemble*" to meet the entire approbation of the party, which, considering the untoward state of the weather, presented a fair round number.

James G. Cooper, Esq., of Blythburgh Lodge, (Chairman of the Club,) presided on the occasion,

assisted by the Vice Chairman, John Rous Cooper, of Westleton, with Mr. Freeman, of Henham, and supported on his right by Harry White, Esq., Haleaworth, Mr. Allan Ransome, Ipswich, Mr. Revans, Yoxford, Mr. Farrow, Ipswich; and by the Judges of the day, Mr. Thomas Davey, Yoxford, Mr. Thomas Casson, Dennington, Mr. John Gobbitt, Iken, on his left.

The toasts, on the removal of the cloth, commenced with that pledged to the Queen, which was drank with the loyalty of Englishmen, and was shortly followed by one to Prince Albert, which was equally well received.

Song—"The Queen and Prince Albert—God bless them!" by Mr. Hardacre, Hadleigh.

"The Queen Dowager, with the other members of the Royal Family;" the "Members of the County" met with the warmest reception.

Song—"The Old English Gentleman."

THE REPORT

Was here read by the Secretary (Mr. R. Hughman, Yoxford), as follows:—

There is a gratification connected with pride in seeing theory borne out by practice, and in schemes of improvement ratified by the voice of experience. In this position, the committee appointed for drawing up its annual report, feel justified in placing the Yoxford Farmers' Club amongst the foremost of the introducers of such societies into this county, and, we trust, second to none in its endeavours to carry their principles into effect. Your committee are induced to believe that their conclusions on this head are just, not only from a careful perusal of the discussions made during the past year on some of the most interesting branches of agriculture, nor from the general full attendance of members at the monthly meetings, which might reasonably be supposed to stamp the resolutions at which they have aimed with something like the impress of truth, but from the fact—more powerful than either from being the result of *both*—that Farmers' clubs are rising into deserved popularity; that they are springing up into all parts of the kingdom, and that most of them are forming themselves on the model furnished by your own, as the many applications for your rules received by your secretary will abundantly shew. This, your committee conceive, would not have been the case had not some amount of advantage been derived from those societies previously established.

Strongly impressed, therefore, with the conviction of the benefit the Farmers' clubs are likely to produce on the *agricultural*, and consequently on the interests of society at large, your committee will proceed to lay before you their report of the past year's proceedings, that you may decide how far the opinions which they have given shall be found to coincide with your own.

The first meeting in December was principally devoted to the selection and arrangement of subjects for the year, cards of which were printed for the use of the members, and the most encouraging results have followed this new regulation.

Two of the members were at this meeting appointed to represent the Yoxford Farmers' club at the meeting to take place with the merchants, relative to the decision of a fixed rate of portage to be paid for the delivery of corn, and the agreement to pay one halfpenny per coomb on every description of grain was the result of this interview.

The subject for January was a detail of the results of experiments on various artificial manures, at which meeting, Mr. Farrow, from Ipswich, gave much useful information on the chemical character and quality

of the nitrate of soda and potass, together with their fertilising effects on the land.

We were favoured, too, with the details of experiments carefully made by several of the members, with their results, all tending to confirm the conclusions arrived at by the meeting in February, 1838, by the evidence of more extended trials: viz.—

"That on light, mixed, or thin-skinned heavy soils, saltpetre and nitrate of soda manures have the effect of producing much straw, with an increased quantity of corn; but that on deep and productive soils, and on such as are naturally calculated to produce luxuriant crops, their tendency to force the early growth of the plant is prejudicial to grain crops."

In February, after fully entertaining the subject of "the advantages of rearing and weaning neat cattle, with the consideration of the best method of improving breeds," it was the opinion of this meeting, that the breeding and grazing stock in Suffolk would be much improved, by crossing the native cows with a pure-bred, short-horned bull, and that it would also be desirable to rear more young stock in the county, with a view of fattening the same for market, in order to prevent the inconvenience of being occasionally driven to purchase store-stock at exorbitant prices. On the whole, that this plan would be more profitable to the farmer where he had the facilities of putting it into practice.

In March, when the subject under discussion was "the best varieties of spring corn (barley, beans, peas, and oats,) with the best method of culture for the same," the meeting came to the decision of Chevalier barley being the best adapted for heavy land, though the Berkshire was preferred by some; that, from the experience of several light land farmers, the preference was given by them to the American. The Nottingham barley has not been tried to justify a decided practical opinion, though the general remarks were in favour of it. With reference to the culture, it was thought that on stiff soils the barley mostly does better, from being put in as early after February as the well-working of the land will admit. Of beans, the common French tick was deemed the best description for growing; and that beans drilled generally insured a better crop than those *dibbled*; the superiority of the former practice is probably attributable to the deeper imbedding of the beans by the process of the drill, than by that in the operation of setting, added to the careless manner in which the dropping of the seed is too often performed.

The experience of the members generally was in favour of the Maple grey pea, its produce being equal to that of any other description, and its worth at market much greater. Oats being but little grown by the members of this club, no discussion took place upon that description of grain.

The advantages or disadvantages attendant upon stall feeding and soiling in summer, were introduced in April to the meeting, under the theoretical impressions formed upon the evidence of certain published statements, rather than from personal knowledge founded upon experience, consequently the meeting had not the opportunity of coming to a fairly canvassed decision. It has been stated on the authority of *Tull's British Husbandry* (p. 372) that 50 per cent. are gained by soiling and stall feeding in summer; but it was the opinion of the meeting that, under the mode of cultivation practised in this neighbourhood, and from the generally inferior character of our pastures, the benefits to be derived from summer stall-feeding or soiling are not attainable by us. It is also strongly evidenced, that the in-

creased cultivation of vetches on heavy land would be attended with so much disadvantage to after crops, as to render this mode of feeding unadvisable to a greater extent; as a substitute for which, it has been suggested when the soil is suited for it, to try the cultivation of lucerne for this purpose, and any future evidence of its value would be very desirable.

This periodical business of opening sweepstakes for root crops, occupied the attention of the evening; and the extra number of candidates shews that emulation is on the increase for attaining excellence in this department of agriculture. Mr. Thos. Capon, Dennington; Mr. T. Davey, Yoxford; Mr. John Gobbitt, Iken, were appointed as judges of the above.

The May meeting introduced to the consideration of the members "the best varieties of roots, and best method of culture for them;" and the result was the adoption of the following resolution:—

"For the purpose of grazing, it appears to be the general opinion that the ridge or Northumberland method is the best to grow beet, with the ridges from 28 to 32 inches apart. The same observation applies to Swede turnips, with the ridges from 20 to 24 inches distant, this plan affording greater facilities for cleaning the land, although the broad-cast system is preferred for the purpose of feeding off the land with sheep. The red or purple beet is the best to grow, as it produces more weight than any other sort; the quality of the yellow beet is superior, but the deficient produce will not make a sufficient compensation."

Of turnips, the Swede, with a green or purple top, (provided it be not coarse,) and a single clean root, is the best description for growing.

The cultivation of the long white carrot is strongly recommended, from producing a heavy crop, of good quality, and adapted to strong as well as mixed-soil lands; will keep well, and is excellent food for cart horses. In cases when light land appears to be tired of common turnips, it is deemed desirable, from the practical experience of a member, to grow beet in lieu. To obtain the above results in perfection, a good coat of manure is indispensable.

The expediency or in expediency of discussing the corn laws at a club, having been submitted by a member as a seasonable topic for this month, the original subject for June was postponed for future consideration. The corn laws have ever been regarded by the members of the club, as of vital importance to the agricultural interest, and therefore the debate, involving the above question, was conducted with much animation; for although the members were, with very few exceptions, decidedly in favour of canvassing the corn laws as a corporate body, still the arguments and precedents adduced by a talented and valuable member of this club (one of the minority), in deprecation of such a course, were heard with considerable interest. This individual was considerably in favour of the corn laws, and sincerely believing the arguments of those who maintained them to be based upon truth, he would wish to have them made known through the most efficient medium; this, he contended, was not by discussing them *as a club*, it being his opinion, that all decisions arrived at through such channel, however unanimous, have with the legislature only the weight of one man; whereas by convoking a special meeting (which might equally combine all the members of this club,) the name of each man being given, the petition would carry with it its intended numerical value. To ensure this advantage, in an equal degree, it was argued by the members generally, that it might be obtained by them *as a club*, the same way; that by the signature of every

member being made, together with the amount of his occupation against his name, it would in like manner have its individual importance, whilst the astounding fact confirmed by the aggregate, that upwards of 40,000 acres of land, occupied by the members of this club, owed their *cultivation*, and a vast number of the community upon them, their *subsistence*, solely to the protection the present corn laws afforded, would make a powerful appeal to the government of this country, tending to convince them of the paramount importance of guarding the interest of those who supply its staple commodity,—a production which extends throughout the length and breadth of our land, of which all ranks partake, of which none can call themselves independent—on the culture of which so many millions of capital are embarked—on the success of which such a mass of the population stands—on the want of protection for which so many more must fall—and on the consequent neglect of which, this empire would be at the mercy of other nations for the means to live!

The members of the opposition advised Farmers' clubs, whatever their subject, to study the opinions of those who differed from, as well as those who agreed with them; never to confine their discussions to conclusions gleaned in their locality, but to sift them thoroughly by bringing foreign evidence to bear out the *truth*!

The opposition being withdrawn, the meeting came to the following resolution:—

"That the discussion of the corn laws coming perfectly within its rules, it is therefore competent to entertain it, and deeming the subject one vitally affecting their interests, they feel every disposition to exercise the power they possess."

The subject discussed in July was that which had been proposed for June, viz., "on the advantages of mowing wheat, and general consideration of the best method of harvesting corn."

Several members having stated their opinions and experience on the subject, and having entertained it as fully as it was practicable, the meeting came to the resolution, that mowing wheat in a great many instances could be done at less expense (say from 1s. 6d. to 2s. per acre), equally well, and with more expedition than it could be reaped; but, on the other hand, in several cases, mowing would be ineligible if not impracticable; for instance, when wheat is broken down, the crop not free from weeds, or a laid crop. Amongst the advantages of mowing, in addition to a less expenditure, it appeared to this meeting that a larger quantity of corn can be harvested in less time; that in case of wet weather mown wheat will be fit to cart (if free from rubbish) long before reaped wheat; that the expense of chopping the stubble will be saved; and that the additional straw, arising from mowing, is of much better quality than the stubble for the purposes of manure, &c. The meeting, however, were of opinion, that mowing wheat could not in all cases be recommended, as parties must, of course, be guided by local circumstances.

August being harvest month, no meeting took place.

In September, the subject under discussion was, "the best varieties of wheat, and best mode of preparation for seed."

The following were the wheats, whose qualities were discussed, which, with their comparative merits, and peculiar adaptations attached, may be considered as the conclusions at which the meeting of this evening, after a long and animated debate, arrived, specimens of various kinds of wheat having been brought to the club on the occasion, by such members as felt

anxious that every facility should be afforded for arriving at the truth.

TUNSTALL—Good deep soil heavy lands, but it is subject to mildew—good and weighs well; is approved by the millers—short straw.

GOLDEN DROP—Tender heavy land—coarse, but heavy; weighs well—short straw.

LONG STRAW WHITE—Thin-skinned, tender, heavy land—of handsome sample, but light in weight—long straw.

BROWNE'S CHEVALIER PROLIFIC—Good mixed soil lands—newly introduced; appearance of crop approved, but not much grown—fair straw.

COMMON RED—For poor lands; more hardy, and produces a better sample than any that description of land would produce—good ear—long straw.

HARDCASTLE—Heavy or good mixed soil, very likely to pepper-brand; early, but tender wheat to harvest—good crop—long straw.

WHITTINGTON—Lands of average quality—thin-set, but being new, the club cannot by experience attest—long and strong straw.

The foregoing appear to have been the different sorts of wheats most approved of by the members of this club, and the general qualities of the same as above adduced are the results of their experience.

"The best method of harvesting and storing root crops, and preparation of the land for future crops," engaged the attention of the meeting in October. With reference to the first part of the subject, it was considered that the most eligible plan is that of clamping them up about 2 yards width at the base, and coming off at the top in the form of a pyramid: this is to be covered with straw about four inches thick, and then earthed up about 6 inches thick, nearly to the top, an aperture being then left open for a considerable time in order to allow the heat to evaporate; after which, to be entirely closed like the rest part of the clamp. This last operation of allowing for the evaporation of heat is essentially necessary, as it seems that some members of this club have met with considerable loss from not attending to it; whereas, had the process of ventilation been suffered to take place as above mentioned, the evil results attending the neglect of it would have been avoided; for if the heat be confined, the root must inevitably decay.

Swedes and other turnips can be preserved in the same way, but covered thicker with straw or stubble and no earth, being more liable to heat than beet.

The best method of preparing the land for future crops can never be satisfactorily ascertained so as to admit of general adoption, as it must entirely depend on staple of the land, and the peculiar style of culture suited to its nature, together with its previous state of foulness or cleanliness.

With this the proceedings of the year terminate, and as your committee at the outset of their report felt bound to approve what you had already done, they deem it equally incumbent upon them in concluding it, to point out what you have not yet achieved—that you have not attained *perfection*; and as that ought to be the aim, though it never can be hoped to be the reward of human exertions, they would impress on you, individually and collectively, the good to be derived from adopting the motto at least in the life of Charles XII. of Sweden as your own—"To think no conquest great while ought remains;" and to believe that those who remain stationary, are, paradoxical as it may appear, necessarily retrograding. And as we step then towards progression, your Committee would suggest the propriety, not only of having all your future subjects of discussion for each month judiciously selected at the

commencement of the year as heretofore, but also that two members should be appointed to (if we be allowed the expression) *affiliate* them; and to keep up the metaphor, they should make it their business to MAINTAIN them by careful observation, experiment, and research, during the interval that may elapse between their being respectively brought forward, as experience has sufficiently confirmed the proverb, that what is the business of *all* is too frequently considered to be the concern of *none*.

P. S.—We trust all our correspondents have found us ever ready to comply with their requests, and of interchanging opinions and decisions of and upon all subjects affecting the agricultural interest.

Being moved for adoption, duly seconded, and coinciding with the general opinions of the meeting, the report was ordered to be printed and distributed for the use of the members.

The CHAIRMAN then gave the health of the Earl of Stradbroke, and Prosperity to the East Suffolk Agricultural Association.

MR. FREEMAN, Henhain, in rising to acknowledge the compliment paid to his Lordship, said, Gentlemen,—For the high compliment you have paid Lord Stradbroke, in drinking his health, allow me to return you my best thanks.' His Lordship, I assure you, is a staunch supporter of agricultural associations, and the general improvement of agriculture; as a proof of which, a great deal having been said about the improved system of harvesting wheat, viz., by mowing, and it having been proved to his Lordship that the system was advantageous to the tenants, he immediately allowed the system to be practised on his estate. I was glad to see this the case, being thoroughly convinced that any indulgence thus granted would be attended with a good result, and keep up the spirit of improvement. I hope ere long to see the prejudice which now exists against *mowing wheat* entirely abandoned, for, from the improved state of cultivation, the cover for birds on wheat stubbles has been much decreased within the last twenty years, and ample compensation given to sportsmen by the increasing quantity of beet and Swedes now cultivated. He concluded by proposing the health of our much respected chairman, Mr. Joseph Cooper.

The CHAIRMAN then rose and said,—Gentlemen, —I cannot but feel flattered by the kind way in which Mr. Freeman has introduced my health to your notice, and I do consider myself extremely honoured by the very handsome manner in which you have responded to the toast. Ever since this club has been formed I have had the gratification of acting as chairman, and I beg to return you my best thanks for the kind and able assistance that I have at all times received. At the time I undertook this ostensible station, it was with an express understanding that I should hold the office no longer than Mr. Allen Ransome continued to act as secretary; and it was my wish to have retired at our last annual meeting, but at your request, gentlemen, I continued in office during the past year, and I hope and trust you will now permit me to withdraw.

When I look around, and see so many gentlemen eminently qualified for the situation, I am sure you will have no difficulty in electing one who will conduct the business of the club in a much more efficient manner than I have been able to do.

Feeling persuaded that the success of all societies similar to ours depends in a great

measure upon the efficiency of its officers, I cannot retire without tendering my warmest thanks to our worthy treasurer and secretary for the very able and ready assistance they have at all times given me, and I am confident that we are particularly indebted to Mr. Secretary Hughman for the efficient and business-like manner in which he has attended to the affairs of the Club; and, gentlemen, I am sure you will agree with me in re-electing our present treasurer and secretary, and I hope those gentlemen will continue to hold office, in order that your new chairman may have the benefit of their experience.

Gentlemen, I once more thank you for the many kindnesses that I have received at your hands, and I have much pleasure in drinking ll your good healths.

We have great pleasure in adding that the excellent Chairman's wish of retiring from office was overruled by acclamation.

Here followed the election of officers, when we were happy to find that the Chairman, Treasurer, and Secretary for the past year, accepted, at the unanimous desire of the meeting, their respective duties for the year ensuing; the chairman being promised the aid of twelve members, for introducing the various subjects of discussion at the future monthly meetings.

MR. REVANS then gave the health of the Treasurer and Secretary of the Club.

The Secretary (MR. R. HUGHMAN) then addressed the meeting to the following effect:—Gentlemen,—I shall be proud to continue your Secretary, since such is your wish; and in rising to thank you most sincerely for the kind reception which the proposal of my health has met with amongst you, I may, perhaps, be permitted to make a few remarks on farmer's clubs, and strive, if possible, to remove the prejudices which still exist in some minds against societies like our own.

We all know that it is the fate of innovation to be decry'd by some portion of the community, and every scheme, whether for national or provincial improvement, has met with illiberal opposition amongst those who have condemned its views of benefit, without daring openly to refute them; who have with greater avidity pointed out its evils, without lending so much as a finger to obviate them; who have irrationally refused to be convinced of the probable increase of those, the possible diminution of these, and the consequent balance of good after the deduction of evil. Gentlemen, such a petty host of detractors are not wanting to farmer's clubs, though the present assembly might seem to negative the assertion; still there are some (and if, "like angels' visits, few and far between," so much the better,) who look upon our meetings as calculated to injure rather than advance the farmer's interests, and by thus judging superficially, they arrive at conclusions contrary to fact, detrimental to the common cause, and discreditable to their own impartiality. That which has truth for its object ought to have the concurrent assistance of men for its support; and I believe that it is for the investigation into the origin of certain facts, upon which to build with safety agricultural practice, that this and similar societies are established. We profess to go to first principles, and are happy of the company of any who may wish to join us in the laudable search; we profess to lay before each other the result of our labours, and are obliged to any who can add to our intelligence; we profess to

call upon the old to teach and the young to learn ; and, gentlemen, we profess to entertain no very exalted opinion of those who are incapable of doing either. I would ask, then, how is it possible that the pursuit after truth by rational means (and I deem principles substantiated by experimental rational means) can be inimical to the interests either of the land-owner or the land-occupier ? Shall it be said that the whole benefit derived from the capital expended on the land by the tenant, flows into the coffers of his landlord ? Gentlemen, your well-fed horses, your well-furnished homes, your well known reputation for the "good things of Egypt," bear witness against this. Shall it, on the other hand, be contended that the tenant monopolizes all the profits attendant upon a high cultivation of the farm he has hired ? Whose fields, then, I would ask, are enriched by this ; are they the tenants ? Whose property is improved by it ; is it his who tills the soil ? Whose income is augmented by it ; is it his who pays the increase of rent ? Gentlemen, the converse of the proposition would be true. It must be evident that every coat of manure you cast upon his land is like a vein of gold running through his estate, which, while it deservedly repays, during its temporary tenure, him who *hires*, remunerates, in an extended ratio, him who *owns* ; thus proving that the ultimatum of benefit must be felt by the lord of the soil, while only the channel through which that benefit flows contains the fertilizing streams that can fill the garner of the enterprising though transient occupant. The interests of neither can subsist apart, for the landed property of the one, and the industry and capital of the other, are then only valuable, when the former can find a profitable cultivator, and the latter an eligible investment. This is their relative, and ought to be felt as their *proper*, position ; and, like scales in an even balance, an equality of power remains on either side. Where, then, is the danger complained of by our adversaries to be apprehended ; that it is from farmer's clubs that landlords are made acquainted with the true value of their land, and that they will increase their rent accordingly ? Where would be the advantage of their adopting such a course ? The very *consequence* would destroy the *cause*, and in a few years leave half the farms in the country tenantless ! If it be well known at these clubs that farmers are improving their land, and thereby their crops, it is equally notorious that they are embarking extra capital, employing extra labour, applying extra skill, launching into extra speculation, hazarding extra experiment, and enduring extra anxiety, about the probable result of all. And what is their inducement for all this ? Doubtless their own emolument. Destroy the possibility of that emolument, and the inducement exists no longer, the land thrives no longer, the farmer subsists no longer, the landlord lets his farm no longer.

Gentlemen, 'tis a connected, 'tis an interwoven interest, and in *that*, as well as in nature's chain—

"Whatever link you strike,
Tenth or ten-thousandth, breaks the chain alike ;
And in the dread creation leaves a void,
Where one step broken, the great scale's destroyed."

This, gentlemen, is the annual meeting of a farmer's club, and I rejoice that among other fruits of good living which we have shared, we have also had a relish for "the feast of reason, and the flow of soul ;" that, while we revel in the abundance of the earth, we are not unmindful of the unceasing

obligations we are under to our kindred element, that element which is the component principle of our globe, from which we spring, on which we live, to which we tend, with which we shall ultimately mingle again ; to that element which claims universal love, from being the universal parent ; which challenges universal gratitude, from supplying universal wants ; which deserves the universal energies of *man*, from having shared in the sublime conception of Creation.

I rejoice that here, at least, we are met to improve that earth which the savage of the South Seas fertilizes only with blood ; which the indolent Oriental leaves for spontaneous production,

"And tramples, brute-like, o'er each flower,
That task'd not him one cultured hour ;"

Of that earth which in our land taxes the sinews of her sons, before she yields them her increase, yet blends with the imposition of toil the privilege of distinction, and the qualification of pride, inasmuch as she reveals to softer climes the triumph of industry and art over the barriers of nature ; of the power of man of rising superior to insular transitions of atmosphere, and the attendant privations of a northern locality ; and of the pre-eminent ability of England to combat, in connection with these difficulties, a mass of taxation unprecedented in history, and which not all the luxuriance of the tropics would be equal to sustain.

I rejoice with every Englishman who responds to the panegyric of his brother patriot ; more proudly do I exult with every Suffolk yeoman who shares in the nationality and philanthropy, which once kindled in the bosom of our late lamented James Bird such sentiments as these :—

"Britain, thy children are the free and strong
In soul and form, to thy bright name belong
Undying glories ; in thy people dwell
The might of mind, the virtues that excel ;
Thy arts, thy commerce flourish and extend,
They know no limit, may they know no end !
Yet other springs of boundless good are thine,
Let but thy sons in wisdom work the mine ;
Whence drew our fathers wealth ? whence did their toil
Diffuse the gems of plenty ? from the soil !
Oa what firm basis can thy credit stand
Amid the stock of nations ? On the land !
What spreads in peace unnumber'd blessings round,
Diffusing life to all that breathes ? The ground !
What gives in war thy greatness, glory, birth ?
Sustains thy brave and countless hosts ? the EARTH !
Yes, my lov'd country, may thy peasants still
Toil with delight in valley and on hill ;
May yet the tillers of thy land be blest
With wealth for labour, with content in rest ;
May those who govern and the govern'd, learn
That nature's laws are ever kind, not stern ;
That from the earth, our common mother, springs
The life-blood of thy people and thy kings ;
That all which food, and health, and raiment yields,
Flows from the riches of the garnish'd fields ;
And as the dews of Heav'n impartial fall,
They smile, and bloom, and bear their fruits for ALL !

The CHAIRMAN then gave, "Mr. Allen Ransome and success to the Royal English Agricultural Society."

Mr. A. RANSOME in acknowledging the toast, dwelt at some length on the advantage to agriculture resulting from the establishment of this Society, and on the necessity of its being well supported not only by the pecuniary contributions of the farmer, but by the information which most had in their power in some manner to contribute, and by which, would the welfare of the Society and its advantage to the community, be mainly realized.

In allusion to remarks which had not been unfrequently made as to the character of some of the essays appearing in the Quarterly Journals, that some of them contained statements contrary to fact, and the knowledge and experience of practical men, Mr. R. in admitting such might possibly be in some instances the case—said it was but a natural consequence probably arising from their emanating from a class of men, who, possessing the valuable qualifications of talent for observation and close habits of research, but whose situation might nevertheless have precluded an intimate acquaintance with the minutia of practical detail, having for the first time turned their attention to certain striking points of agricultural practice, and stating their views on them—crude, though they might be in some instances,—had rendered no small service to the cause, by attracting the attention of the agricultural public to subjects, on which their long and hereditary practice had created prejudices so habitual, as to have left on their minds scarcely room for a doubt as to whether they admitted improvement. To remedy any chance of evil arising from this source, it was the duty of all practical men, closely to watch, and by endeavouring to correct rather than cavil at these, the smaller errors—avall themselves of all the good, while they reduced the chance of evil.

If great and permanent good is to arise from the establishment of the Royal Agricultural Society, it will be from its affording an opportunity to gather together a large amount of facts and a vast fund of information, and which, accumulated in mass from every source, and under every variety of circumstance, will furnish the material from which men of sound mind and high scientific attainments, accustomed by clear reasoning to weigh and balance evidence, shall ultimately be able to deduce those principles which shall raise agriculture from the simple character of an art to the dignity and security of a science.

The healths of Messrs. Freeman and Farrow, and prosperity to all Farmers' clubs, were then given by the president.

Mr. FARROW returned thanks for the honour. He considered that these societies were eminently calculated to supply that desideratum, the want of which had hitherto tended, perhaps more than any thing beside, to retard the progress of agricultural improvement, viz., the means of a more extended communication between the farmers of distant counties; and it is not their least valuable feature, that they afford a ready medium through which the researches of scientific men may be disseminated, and their discoveries rendered more immediately available in improving the science of agriculture. Of the great and increasing interest felt in this science we have ample proof, in the establishment of a professorship of agriculture at our Universities, and the successful efforts now making by Professor Buckland and others, to bring their valuable labours to bear more directly upon the practical operations of the field; and this is precisely the kind of assistance which agriculture now needs. Of the sound practical skill and judgment possessed by the farmer of the present day the country may be justly proud, but there are few, whose practice (excellent though it be) might not be improved by the addition of a little sound theory; and if upon the valuable qualities already possessed, could be grafted a larger amount of scientific knowledge, and more strict attention to sound principles, we might hope to see agriculture arrive at that state of perfection which (great

as have been the improvements of late years) we can at present form but a very inadequate idea. It has been said that these clubs are merely meetings for the furtherance and support of class interest, and that consequently their interest extends no further than the class more immediately concerned in them.

Now, admitting to a certain degree the fact, that the primary object of these clubs is the very legitimate one of improving our means of conducting that business in which we happen to be engaged; admitting this, I do unequivocally and emphatically deny the inference, that the improvement of agriculture is a subject, the interest in which is confined by such narrow limits; the cause is one in which all are alike concerned; it is confined to no rank, to no country; it belongs to the whole family of man, and deeply as the landlord, deeply as the landholder, may be interested in increasing the productive energies of the soil, it is no less the cause of our poorer brethren.

For, however the improvements in agricultural practice may appear in some instances to militate against the interests of the labouring class, it is nevertheless a fact which cannot be controverted, that in those districts where farming is carried on to the full extent of modern improvement, and where consequently every advantage is taken of the powers of machinery in conducting the various operations, it is a fact which experience has shewn, that these are the counties in which the labourer receives the largest amount of wages; and I firmly believe that if every acre now under cultivation were farmed up to the highest extent of its capabilities, so far from hearing of a surplus amount of agricultural labourers, we should require drafts from the manufacturing to supply the deficiency in our agricultural districts. Mr. Farrow sat down amid great cheering.

MR. FREEMAN also acknowledged the toast.

The Vice-President's (Mr. John R. Cooper) good health was then given by Mr. Revans and received with a general bumper.

Mr. John R. COOPER said, I am much obliged by the compliment you have paid me in drinking my health, as also to my friend Revans in proposing it. I can assure you it always gives me great pleasure to meet you upon all occasions, but never more so than on the present; I consider, gentlemen, that Farmers' clubs are of considerable benefit to the neighbourhood, owing to the discussions that take place respecting the best description of grain, as also the land best adapted for it, the increased quantity of root grown, and the superior quality to what it was formerly. I think, gentlemen, that you might improve your society by an extension of stock belonging to its members, at the annual meeting for a sweepstakes as well as roots, for many an individual objects sending to the Wickham and Saxmundham Show on account of distance, as also the season of the year being much against sending milch cows; therefore, gentlemen, I should suggest for your approbation that a show for sweepstakes be established for next year. I once again, gentlemen, beg to thank you for the compliment paid me, and in return drink health, happiness, and prosperity to one and all.

"The Judges of the day."

Mr. DAVY, one of the Judges, then read the adjudications of the sweepstakes, and said, "Gentlemen, this is the result of this day's exhibition of roots for the sweepstakes. The roots were not of so fine a description as those shown last

year, but the season has been a very unpropitious one for the root crops; but in selecting the best varieties of beet, Swedish, and other turnips, great attention appears to have been paid by the gentlemen who have competed for the sweepstakes, and I particularly request the attention of the members of the Club, to the great care they ought to exercise in procuring their seeds for the root crop from the best varieties that can be procured, and not for the sake of seeding their land at from 6d. or 9d. per acre less money, put in seed from an inferior stock, the produce of which will not be of half the value as those from a good variety of either beet or turnips. A gentleman told me he purchased last year, some seed described as Swede turnips, of an excellent quality, and had sown upwards of 200 acres of land with it; there was not a single Swede seed in it, it was a kind of spurious Scotch turnip; from its being much imbedded in the soil it had produced a tolerable crop, but owing to its being sown too early was now very flocky, and required to be consumed immediately. Another seedsman had sold a quantity of coleseed at the same market for Swede turnip seed, one gentleman had sown near 20 acres of it, and others less breadth, according to their occupations: a total loss of their Swede turnip crop was the consequence, after having prepared the land at a great expence. Surely farmers ought never to subject themselves to such casualties, but ought to use every exertion to procure roots of the best description as to quality and produce, and then grow their own seeds either on their land, or in the cottager's gardens, as it would answer their purpose to fully remunerate the grower rather than risk the heavy loss, consequent upon sowing bad seed or from an inferior stock. There was some fine specimens of beet, Swedish, white, and Scotch turnips, also some white carrots shown this day as extra roots, and I must say, the gentlemen who sent them to the meeting merit the thanks of the club, as it is by comparison that the superior quality of the root is more clearly demonstrated.

It has been suggested to me that the extension of our sweepstakes to other objects would be beneficial, as it would have a tendency to keep alive an increased interest in the club, such for instance as sweepstakes for the best riding or cart foal, the best year old bull, heifer, or steer, the best store pigs under six months old, or any other young stock to be named. Also for the best samples of particular varieties of wheat or other grain. I take the advantage of this full meeting of the club to mention it, that gentlemen may turn it over in their minds, and decide in acting upon it, or not, at the next meeting, when arrangements for the proceedings of the club for the ensuing year will be made.

The manner in which the subjects for discussion at our monthly meeting having been very properly alluded to in the report, I beg to make a few observations on in this place. It will be in the recollection of many gentlemen present, that in the first year of the formation of the club, gentlemen came forward very promptly to propose subjects for discussion; these were generally very properly introduced by the proposers, but two or three instances did occur, in which the proposers of the subject for discussion did not attend at the meeting appointed for introducing it to the club, and as it was thought it would show a want of courtesy to the proposers if taken up by other parties, such subjects were not submitted to the consideration of the club. To remedy this, it was

thought desirable that the subjects for discussion for every month in the following year, should be decided on by a committee, and a certain member should be requested to introduce them; this latter request was but partially acted upon, and in the majority of cases the subject had to be introduced by the chairman, and though all who have the pleasure of knowing Mr. Cooper were quite satisfied it could not be in abler hands, yet I must say it was very unfair towards the chairman. I do hope therefore that gentlemen will be very ready to propose subjects for discussion in the ensuing year, and that the gentlemen proposing them will make a point of attending at the time named for discussing the subject; and also to engage some friend to assist in carrying out his views, that no contingency may prevent its being brought forward in its proper order and time, and not expect the chairman to do it, who may entertain different views of the question than the proposer does, and whose attention must necessarily be directed to other objects.

At the great annual meeting of the Scotch West Highland Agricultural Association last year, a distinguished nobleman observed, "that the education of the agricultural youth of Scotland was very superior to what it was 50 years since, and he had the most sanguine hopes this would enable them to carry out the great improvements, now in progress in the country, in a more useful and scientific manner; indeed, if we looked at the prize essays this year, it would be found that many of them were written by our young men, and that the manner in which these subjects were treated upon, would have reflected the greatest credit on their seniors." Gentlemen, these observations on the agricultural youth of Scotland, apply with equal force to the same class in this country; their education is very superior to what it was when I was a boy, and we may reasonably hope the same results will follow; but whether they excel or outrun us, or not, in carrying out the various improvements in agriculture now going on in this country, there is one point of view in which I look at it with the greatest pleasure. It gives me unmixed satisfaction and delight to see so many of our young agricultural friends attend our monthly meetings, their presence with us gives a kind of vitality—a sort of guarantee and assurance, that that spirit of agricultural improvement which is now spreading the length and breadth of the land will never die, but will still progress, and maintain our agriculture what it always has been, as the main-stay of many of our best institutions, and what in the opinion of all foreigners who visit us it now is, as one of the brightest ornaments of our beloved country. Gentlemen ought to recollect farmer's clubs are composed of individuals, and that if each individual contributed his mite of knowledge, the result of his experience in his avocation as a farmer, he will be promoting the end and object of the club, namely, the general improvement of the agriculture of his country.

Toast—"The Successful Candidates;" who returned thanks.

"John Mosely, Esq.; and many thanks to him for his unremitting exertions in the cause of agriculture."

"Messrs. Revans and Lincoln; and success to Commerce, Manufactures, and Trade."

Mr. REVANS, said—Gentlemen, I thank you most sincerely for the kind manner in which you have received the last toast, and I feel gratified by your

having connected my name with a subject of such deep interest as the success of trade, manufactures, and commerce. Believe me, gentlemen, the success of these branches of industry is of great importance to agriculture; for if the agriculturists are the best customers to trade and manufactures, the population employed in those branches consume the produce of the soil, and mainly support the landed interest: in fact, the interests of the four branches are so intimately connected, that each branch is deeply concerned in the success of the other; but, gentlemen, the subject opens a wide field for observation, to which I feel I cannot do justice. Fortunately, the gentleman whose name is associated with mine in the toast is more capable of showing how intimately the mutual and reciprocal interests of all are connected than myself. I will, therefore, no longer intrude upon your time, or prevent his addressing you.

Mr. Lincoln, Messrs. Richard and Newson Garrett also addressed the meeting, all tending to shew how intimately one branch of industry is connected with another, and how vitally the success of the soil must influence the departments of merchandize, trade, and manufacture.

Toast—"The Ladies."

The business of the meeting closed with a few practical remarks from the Chairman, that the funds in hand should be given as prizes for the best specimens of vegetables, roots, &c. the produce of cottage gardens and poor allotments, and adjudged at our next annual meeting, and two sovereigns were voted for that purpose, Messrs. Ransome, Revans, and Garrett most handsomely aiding the above proposition by offering one sovereign each in addition, to be similarly applied. The party then separated with much satisfaction at the manner in which the evening had been passed, and a gratifying conviction that pleasure and profit had in it been judiciously blended.

AGRICULTURAL MUSEUMS.

We have much pleasure in laying before our readers a detailed description of the Agricultural Museum of the Messrs. Drummond, at Stirling, which will be read with much interest by all "improvers," to use a northern term, and which must necessarily give rise to the inquiry, how comes it that proverbially *poor* Scotland can boast of possessing such a valuable establishment, whilst in England—*wealthy* England, there is nothing of the sort? Until within these two last years and a half, the same remark held good as regarded a general Agricultural Society, such as the Highland Agricultural Society. For half a century were the exertions of that society known, and its transactions circulated throughout England, yet were there no steps taken to follow the good example, and to call into active operation in favour of agricultural improvement in England those powerful means which she possesses. That nothing more than energy and perseverance were requisite to effect the object, has been proved by the speedy and successful establishment of the Royal Agricultural Society. The same energy, the same perseverance, are alone requisite to again successfully follow the example of our northern brethren, and establish a Museum worthy of an agricultural nation such as ours. The Museum of the Messrs. Drummond is a private establishment,

and as men of business, they have found it well answer their purpose. That success must, however, depend upon the readiness of their customers, the cultivators of the soil, to avail themselves of improved seeds and improved implements, when within their reach. Does not this prove that the desire for improvement exists, and needs only direction and encouragement to come forward? Who then are the parties who should be the first to move both in purse and person, for the purpose of promoting such an object? We answer, the *owners* of the soil: the *landlords* upon this, as upon all other like occasions, should be the first to set the example. A Museum connected with the Highland Agricultural Society is in progress at Edinburgh, under the superintendence of the Messrs. Lawson, and we know from unquestionable authority that considerable sums have been subscribed by English noblemen and gentlemen, owners of estates in Scotland, to aid in carrying out that object. Can they be indifferent to the value of such an establishment to their English tenantry? We answer, no. The proposition needs but to be made; it must be made,—aye, and it must be carried through. Nor when such an establishment shall have been founded in the metropolis must that suffice; the labourers in the field of agricultural improvement must never cease their exertions until there shall be a library and museum for the reception of agricultural implements, roots, seeds, &c. in every county in England. The little county of Rutland is an example of what may be done by the perseverance of an individual, if he meet with proper support. An Agricultural Hall has been erected at Oakham; an agricultural library has been formed; the Farmers' Club which meets there consists of upwards of 200 members, and it is publicly announced that on this day, November 23rd, Professor Robinson will deliver the first of Two Lectures on Chemistry as applied to the Analysis of Soil, &c. At Callington, in Cornwall, a Farmer has stepped forward and delivered a Lecture upon Agriculture, for the benefit of his brother farmers; such manifestations of a desire for improvement should meet encouragement.

DRUMMOND'S AGRICULTURAL MUSEUM, STIRLING.

Having lately had the pleasure of attending the Scottish and Highland Agricultural Society's great show at Aberdeen, we made also a point of visiting the Agricultural Museum at Stirling,—an exhibition possessing interest not inferior, in many respects, to that of the great show itself.

This museum was originated by Messrs. Drummond in 1831, as a medium of collecting and diffusing a knowledge of the best existing instruments of agriculture, systems of cultivation, and for bringing before the public the successive improvements of the day. The warehouse or commercial department connected therewith is conducted so as to follow out as nearly as possible the same principle. The whole establishment associated with recent valuable agricultural improvements, particularly the Deanston system, now engaging general attention; and encouraged by the authors

* This Lecture will appear in the January number of the *Farmer's Magazine*.

and promoters of these, has attained a very wide, and judging from the extent of building lately erected, a rapidly increasing correspondence. The new museum building, to the plan and erection of which Mr. Smith of Deanston, gave his able assistance and superintendence, is 160 feet in length, and from 20 to 25 feet in width; the two uppermost flats form noble halls, extending the whole length of the house, and chiefly lighted in arcade fashion from the roof; the two lowermost flats are occupied principally as the warehouse. The architecture of the front as well as the interior design and finishing of the entire structure, is characterized by a chaste and simple elegance, in striking adaptation to the end in view. It is in passing through these rooms, however, and examining the various usefully labelled specimens and machinery, that the most valuable economy of means to that end becomes apparent; indeed the whole thing is of itself a very perfect, and we might say, indispensable machine for giving immediate practical effect to the great principle that "*knowledge is power*"; and which requires only to be kept in gearing, and well worked by agriculturists, to produce immense good.

Our time having been limited, we could only take a few notes of what more particularly interested us. The main entry is by the west front warehouse, which is spacious; and here a beautiful *working model* or application of the principle of Mr. Smith's self-sustaining suspension bridge, presents itself, we say working—for it is Atlas-like, supporting the timbers of the building on its shoulders.

Ascending the principal stair-case, the eye is caught by a very fine specimen of bamboo (*Bambusa arundinacea*), exhibiting an altitude of 57 feet, grown in the Royal Botanic Gardens at Edinburgh; there are various Asiatic productions here, which impart quite an oriental aspect to this locality.

We then enter the large hall of implements and machines of agriculture, the display of which manifests at once the great superiority of the living reality to mere models, which at best speak but a dead language to farmers, and are besides slow in bringing forward the successive improvements of the day. Here are classified ploughs of various and improved construction, subsoil ploughs, green crop, and draining implements, &c., among which M' Ewan's drain plough, Wilkie's hillside or turn-wrist plough, and expanding horse-hoc; also a subsoil plough with folding mould-board, and equalizing chains and pulleys for draft bars, were pointed out as recent and much approved; machines and implements for sowing, for reaping, for barn work, for preparing food, &c. We remarked Smith's reaping machine, Drummond's reaping scythe, a new stubble rake, a cover of sheet iron for corn stacks, and a cast iron drainer for stables. A skeleton of a horse, and other veterinary preparations, added not a little to the interest of this apartment; leaving which, we ascend by a flight of steps, firmly supported by another application of self-sustaining work, to the uppermost hall, devoted to the exhibition of seeds, roots, dried specimens of plants, minerals, models, &c., all distinctly arranged by appropriate tables and stages. The grain table bears ample testimony to the propitious nature of the past season. Some of the Hopetoun oats on the straw are seven and a half feet in height, with large and well filled ears. The Annat and Italian barley, and the Hopetoun and pearl wheat, of recent introduction, appear much approved for sample and

produce. The table for grasses and other herbage and forage plants, shews about 150 distinct varieties, in dried specimens and seeds, among which Timothy grass (*phleum pratense major*) now ranks as one of the most valued both for hay and pasture. Italian rye grass is much esteemed for green cutting and for early green food. A specimen of the new Bokhara clover, (*melilotus leucantha*) nine feet high, here presents the claims of the species for cultivation.

In the mineral department is a named collection of Scottish rocks, with the characters of the principal formations in respect to soil. We noticed a novel and instructive mode of exhibiting a geological section of strata, by actual specimens, arranged and proportioned to a scale; also a comparative trial made by Messrs. Drummond, of the qualities of various pure earths for supporting vegetation, having no other assistance than what was derived from rain-water; granite and primitive clay slate shewed the most healthy and vigorous plant.

Besides what we have enumerated, there is an excellent collection of dairy utensils; also many miscellaneous specimens and models, of which models or sections of drains were not the least valuable.

Nor must we forget an appendage lately added, viz., a beautiful display of Scottish clan tartans and other woollen manufactures, for which Stirling district is famed, exhibited by Messrs. J. and A. Drummond, from their extensive stock of these fabrics.

Returning to the warehouse department, we have a further display of implements and many other objects, including scientific and practical works on agriculture.

Taking the collection in the aggregate, we know of no other of the same nature and extent; for the museum of the Scottish and Highland Agricultural Society wants the full-sized implements, and we were at first disposed to regret that the Stirling museum had not the advantage of a more public or metropolitan site; but we are now satisfied it could not be better situated than where it is, in a district which has taken the lead in many important improvements of soil and culture: real improvements being at the same time sought after, and welcomed to the museum from *anywhere*. Correspondence is now equalized by the new postage act, facility of travelling daily increasing, and the use of improved seeds and implements soon and amply repays any trifling addition of freight or carriage. Its existence requires only to be generally known. To laudate the originators or patronizers is no part of our intention, their works bear witness; it is alone from our firm conviction of the utility of the institution in itself, that we desire to give it all the publicity we can, and in this the newspaper press in general might do well to afford their aid.

In conclusion, we heartily wish the spirited proprietors every success; we observe they have put the establishment on the footing of maintaining itself by sales; they have no doubt been at considerable expense, but let it only be conducted with the same integrity and zeal as hitherto, and it will soon, we trust, more than repay them.

Attention to agricultural pursuits, in the spirit of improvement, is one of the most pleasing features of the age in which we live, a feature of which the Agricultural Museum may be called a concentrated reflection; the better it is kept up, the more beneficial the reciprocation becomes.

PROSPECTUS OF A MODEL AND EXPERIMENTAL FARM

FOR THE NORTHERN DISTRICT OF SCOTLAND.

[We invite the attention of our readers to a letter on this subject from Sir F. A. Mackenzie, which will be found at page 433 of this number.]
—ED. F. M.

SIR F. A. MACKENZIE having for many years been impressed with a conviction of the advantages which would arise from the formation of model and experimental farms by both our Highland and English Agricultural Societies, at the same time also conceived the idea of our proprietors and farmers residing in this district lying around the Dornoch, Beaul, and Dingwall Friths, uniting for the purpose of having under their control a joint model and experimental farm, on which all that is proved valuable in more southern districts or counties might be tested, and their advantages or disadvantages made fully known throughout the country. Sir F. would long ago have proposed the formation of such a joint-stock farm, had he not been prevented by the difficulty of finding one of sufficient extent, and sufficiently varied in its soil and climate, and in so central a situation as to be of easy access to our agriculturists for personal inspection—a matter of no small importance—and it was only lately that the idea of offering his own farm for this desirable purpose occurred to him. Its situation is most central; the mail coach runs daily through its centre; and being close to the great monthly Muir of Ord Markets, not only would all our farmers have easy and constant opportunities of resorting to it, but it would be visited by strangers, who could give us the benefit of their opinions and suggestions.

The soil and climate on various parts of Conan Mains are of great diversity, and every way considered, it appears to Sir F. eminently suited, in all useful and practical points, for forming a model and experimental farm, which would be a source of sound information, and consequently a mine of real wealth, to our country. This farm of Conan Mains has lately been inspected by many competent judges, and pronounced to be in as high and as profitable a state of cultivation as any in Britain; and it has repeatedly been remarked by such visitors, that the experiments tested this year on the varieties of wheat and turnips alone are worth, to the surrounding country, a sum more readily conceived than calculated. Some of the wheats, and two or three of the Swedish and other turnips, are calculated as worth—the former £5 and the latter from £1 to £3 per acre above the value of kinds usually grown; and if £5 of increase on every acre of wheat, and £1 on every acre of turnips, were added to the value of every acre of wheat and turnips through the surrounding district, next year, in the North, by sowing only for crop 1841, such last varieties, the increased value may easily be guessed at.

This farm, containing about 425 acres, imperial measure, has always paid a handsome return to Sir F., after deducting rent (as valued by competent judges fourteen years ago), expenses, and interest on the capital; and, within the last two years, a large outlay in draining and improving, gives a fair expectation, judging from the crops lately reaped, of a still larger profit, with full repayment of the capital lately expended.

It is therefore hoped that Sir F. cannot justly be accused of selfish or interested motives in selecting his own farm, when it is evident that by so doing

he must deprive himself of the revenue which the said farm now gives to him, and which is so likely soon to increase. Still, though in a pecuniary sense he must be a loser, he is ready and willing now, or at any more convenient period, to make this sacrifice, in the hope of obtaining what he firmly believes will be of greater benefit to the agriculture, and consequently to the wealth of this country, than can at present be calculated. And for the sake of obtaining this most desirable object, he now proposes the adoption of his farm (or any other that may be found more suitable), as a model and experimental farm, on the following conditions, to be altered and amended as shall to the shareholders seem proper.

1st, A joint company of proprietors and tenants shall be formed, having an interest in the agriculture of that district, lying between the northern limits of Ross and the southern limits of Nairn (or any other more suitable lands), for the purpose of cultivating them in such most approved mode as shall be a pattern and model to the whole district, introducing into their cultivation all the approved novel discoveries of the day, and testing such experiments, for the sake of improvement, as the Society shall see fit.

To obtain this desirable object, it will be necessary to raise the sum of £4000, by shares of £25 each, for the purpose of paying the stock and crop, and first half-year's rent.

2nd, It would be most for the interests of agriculture that only one share should be allotted to one individual, whilst a few ought to be laid aside for the friends of agricultural improvement in England or abroad, as their being partners would facilitate our communications and means of obtaining information from other quarters; but so confident does Sir F. feel of the success of what he proposes, that he is ready not only to take such extra number of shares himself as may remain undisposed of, supposing a sufficient number of individuals cannot be found to occupy one single share each; but he is quite ready, and hereby offers to guarantee the shareholders not only against all annual loss, but also in five per cent. interest on their capital, if he is permitted to act as one of the Council of Management himself, upon his receiving one-half of any annual profits made by said farm; and he will at any time on receiving six months' notice, take back the said farm, stock, and crop, on the same terms as those on which it shall be taken from himself.

3rd, The whole direction of the affairs of this farm to be under the management of a committee, elected annually at a yearly meeting of the shareholders, which committee shall visit and meet on the farm once a fortnight, and give such orders to the bailiff in writing as they may see fit, which orders shall be entered in a book kept specially for that purpose.

4th, The Bailiff to have the direction of details only, and to have 10 per cent. on the profits of said farm, as ascertained at the close of each year, besides his salary.

5th, The most approved and most economical, but at the same time most profitable system of agriculture followed in every department; not above twenty acres devoted to experiments in any one year, nor above one-fourth of an acre for any one experiment.

6th, The farm accounts to be audited by the committee half-yearly, stating the outlay at Martinmas, and at the same time making a calculation of profit probable to be realized at Whitsunday, at which term a final yearly state of profit and loss shall be drawn up, and a copy of such account shall be sent to each member of the committee.

7th, A brief state of all that occurs on the farm

worthy of imitation, shall be published annually, and sold at the cost of paper and printing.

8th, Each field crop and experiment shall be ticketed, to enable visitors to inspect the various operations going forward, without attendants; a plan of the farm, stating the crops in each field, shall be at all times in the bailiff's house, as well as the books, detailing former years' operations, for the inspection of visitors, who shall be requested to write down in a book, kept for that purpose, any remarks or suggestions, that may occur to them.

9th, That a correspondence be kept up with the principal agricultural, literary, and scientific associations all over the world; that every attention be devoted to procuring the best information, the best seeds, implements, and improvements, connected with the art; and that the superior kinds of grain and seeds grown on the farm shall be sold at a price not exceeding one shilling per bushel, or six-pence per pound above the country current prices.

10th, That though it be desirable to introduce the finest and best breeds of cattle, sheep, horses, pigs, &c., no extra outlay shall be incurred in the purchase of such stock, until the society is enabled to do so from the profits of the farm. But the stock shall nevertheless be always of a thoroughly good description, and superior to what is common to the district.

11th, That the society shall limit itself to as small a number of implements as possible, using always those most approved of only, and getting rid of any inferior kinds, whenever better can be substituted in their place.

12th, That the society shall, when their funds admit, take small farms, or rent for short periods, fields on other farms, for the purpose of trying experiments on various soils and in various climates.

Sir F. will not now enter into the arguments in favour of model and experimental farms; he has already stated them in petitions to both the English and Highland Societies, and he is also ready at any time to reply to any arguments, if such exist, against such establishments, and though the sense of necessity for model farms becomes each day stronger, without having as yet any effect on our two leading British agricultural societies, there can be no doubt that such must shortly be established in all directions. To the question often asked why Sir F. does not keep a model farm solely under his own control, he begs to state in reply, that, as a private and comparatively unknown individual, he neither could possess the influence, nor pretend to the knowledge and information which would be at the command of a large and united body of agriculturists, carrying with them a weight and authority, more likely to be listened to than any efforts of a single individual.

In conclusion, Sir F. sincerely hopes, that as the North gave its name and origin to that great society which has so long ruled the agricultural welfare of Britain, his countrymen may still show to the world that our Highland spirit of improvement is not dormant, but that the energy of our ancestors retains its full vigour, and that we are ready to originate an association which will be a blessing to our native hills, and a source of information to the world at large.

In the hope of a successful issue to the above scheme proposed, Sir F. therefore now offers his Conan Farm to the public, and will be happy to receive offers from those who appreciate the advantages, and have a desire to encourage the formation of model farms, addressed to him, by Dingwall, N. B.; and so soon as 50 shares are applied for, the whole will

be placed in a proper form, and a final arrangement take place.

Hatton Nursery, September 14, 1840.

We have read Sir F. MACKENZIE's observations, and highly approve of them; they are of the utmost importance to the agriculturists of the British empire.

WM. SKIRVING, Nurseryman, Liverpool.
WM. BUCKLAND, Professor, Oxford.
WM. JARDINE, Bart., of Jardine Hall.
C. HILLYARD, Northampton.
J. SMITH, Deanston,

Glasgow, September 21, 1840.

We consider the foregoing Prospectus to emanate from an ardent desire for the improvement of our country—to be in itself eminently useful for that end—and that the means proposed manifest great regard to sobriety of progress, at the same time that they allow ample scope for the most comprehensive improvement. Such means are calculated to spread increased prosperity and happiness amongst the inhabitants of an enterprising country.

G. WEBB HALL, Bristol.
DAVID BREWSTER, Principal, St. Andrews.
P. J. SELBY, Northumberland.
LE COUTEUR, Jersey.

We, the undersigned, being practical farmers, agree that such a farm as that proposed by Sir FRANCIS MACKENZIE could be carried on without loss to the shareholders, and with great advantage to the general interests of agriculture; and we deem Sir F.'s terms offered to be advantageous and liberal.

THOMAS OLIVER, Lochend, Edinburgh.
THOMAS SKIRVING, Ditto.
J. MACKENZIE, M.D., Kinellon.
J. LAIDLAW, Contin. } Ross-shire.
J. DENHOM, Dunglost.
FORBES MACKENZIE, Fodderty. }

Conan, Oct. 5, 1840.

If the opinion of foreigners who visit this country can contribute to realize Sir F. A. Mackenzie's project, we say, with pleasure, that, after having seen many farming establishments of the greatest merit in various parts of Scotland, the inspection of the farm of Conan Mains has gained our unlimited approbation.

D'AGASSIZ, Professor.
LE COMTE DE COURCY, Paris.

THE FARMERS' ALMANAC AND CALENDAR, FOR 1841.—By CUTHBERT W. JOHNSON, Esq., and WILLIAM SHAW, Esq., LATE SECRETARY OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—A want, which must long have been felt by farmers, is supplied by this publication, and supplied in a manner to ensure to it a rapid and extensive sale. A mass of most useful information is brought together on subjects which, to this class of persons, is a matter of daily reference, and the care with which it must have been drawn up is evident, from the fact of there being nothing omitted which could serve to render it complete. It comes from the hands of two persons of science, well known to be every way qualified for the task they have undertaken; and, judging from the Almanac before us, they have executed it in a manner that must secure them against all competition.—*Gardener's Gazette.*

ON THE EFFECT PRODUCED BY THE CHEMICAL NATURE OF THE SOIL AND SUBSOIL UPON CULTIVATED CROPS.

(From the Quarterly Journal of Agriculture.)

By HENRY R. MADDEN, ESQ., M.D., PENICUIK.

Under this title I propose to treat of some of those effects which are presented to our view, when examining the various degrees of fertility exhibited by different parts of the same district, and which cannot be explained by any reference to diversity of exposure, climate, or cultivation, and which, consequently, we are led to conclude must be produced by some difference in the nature and properties of the soil, affecting either the crops themselves, the manures applied to the land, or probably both conjointly.

There are two methods in which this subject might be advantageously illustrated, 1st, By shewing the different effects produced by the same manure upon soils varying in texture, upon which subject a great deal of information has been already obtained, and many valuable treatises published, but which is nevertheless still open to careful and minute inquiries. 2nd, By shewing the different results obtained by the same cultivation upon soils of similar texture, but, having a different geological origin: it is to this point in particular that I wish at present to direct the attention of my readers. Before detailing the example which I am desirous of bringing forward, it will be advisable to make a few general observations upon the mode of conducting such enquiries; and I may here observe that one object, and it is of considerable importance, of my publishing the account at present, is for the purpose of inducing others to make similar investigations, for I am willing to confess that I do not consider the subject by any means exhausted, and consequently may very possibly return to its consideration at some future period.

In pursuing an examination of this kind, the following considerations must be particularly taken into account. 1st, It is of the greatest importance, that precisely the same method of cultivation be adopted upon both the spots examined; in fact, if it is possible to get both examples upon the same farm the result will be more trust-worthy, because, as we seldom see two farmers who pursue precisely the same mode of culture, so likewise we continually meet with considerable differences in the product of the same species of soil, in the same climate and elevation. In fact, if this were not the case, if the same soil would, when cropped with the same rotation, always produce equal crops, both as to quantity and quality, the terms *good* and *bad*, as applied to farmers, must be devoid of meaning. 2dly, Both portions of soil must be under similar circumstances in regard to the length of time in which they have been cultivated, as it would obviously be unjust to ascribe to the chemical nature of the land any differences observed in soils of the same texture, if part was newly brought under cultivation, and the remainder either brought to its highest state of perfection by many years of good tilling, or, on the other hand, completely exhausted by the constant repetition of severe and scourging rotations, or the baneful influence of a bad system of farming. 3dly, It will of course be necessary to ascertain that both portions are alike in relation to water, that is to say, either both must be drained, or neither, for nothing could be more absurd

than to compare drained with undrained soil, under any circumstances; and, lastly, in a case of this kind we should never trust to an opinion founded upon observations made in one year only, as there are so many collateral circumstances which tend to produce variations in the crop, that judgments formed in so short a time would be extremely liable to error. In the case which I am about to bring forward, I trust all these circumstances have been guarded against; both the kinds of soils being upon the same farm in some spots, and the same varieties occurring in several situations, and the results being borne testimony to by all the farmers connected with the part of the country to which I refer. I shall at once, therefore, proceed to describe the case, and explain the conclusions at which I have been able to arrive, from a careful consideration of all the well authenticated information which I have received from various farmers in the district.

All those who are conversant with the geology of Mid-Lothian, must be well aware that the coal formation comes in contact with various traps, especially compact felspar, clay-stone, and porphyry, at the south of the Pentland Hills. The junction of the two formations occurs close to the foot of the hills in most places, although, in a few spots, the trap stretches a short way into the more level ground which lies in the immediate neighbourhood. Now, the fact to which I wish to call the attention of my readers, is, that all the farmers in the district, have found a very evident difference in the fertility of the soil, according to its position, namely, whether lying above the trap, or the coal formation; and all are agreed in considering those portions connected with the trap-rocks as by far the most fertile. Two or three of the farms are partly upon the coal and partly upon the trap, in which cases the farmer invariably gives preference to the latter portions, except, indeed, when he has very highly cultivated loam upon the coal,—in which case, of course, it would not be fair to make the comparison with that occurring on the trap, as the latter is, for the most part, hillside soil. This is the case upon the farm of Braidwood, where all the parts lying to the north of the Biggar-road is upon the trap, while the majority lying south of the road, is associated with the coal formation. I have obtained the following very interesting information from the present tenant Mr. James Maclean. Where the soil is associated with the trap-rocks, he finds that his crops are always *much more certain* than on any other part of his farm. That although a much lighter soil, he only gives it the same quantity of manure as the other parts of his farm, and still the crops are equal to any he has, except what are produced by his finest loam; and this occurs constantly, although the land is so much inclined, that, by the rain and the various operations of ploughing, &c., the soil shifts to such a degree, that, at the end of every rotation of six or seven years, he has to cart from thirty to forty cubic yards per acre, from the bottom of the field to the top, in order to keep the soil of the same thickness throughout. Now it appears to me, that we could not have more conclusive evidence of its superiority than the foregoing statements, because, in the first place, we find, that, notwithstanding the part referred to being the most elevated portion of the farm, still the crops are *much more certain* than those upon the lower and more level parts; and again, we find no excess of manure required although the soil is *much lighter*, so that, if compared with soil of the same texture, it would of course be found to require *less*, as it is well known that the lighter the soil is, the more manure it requires, as it stands to reason, that if the texture be such as

to facilitate the action of air and moisture, and thus increase the rapidity of decomposition, it must of necessity require a larger quantity of manure to produce a given effect for a given length of time, than would be necessary were the soil of a nature to retard the putrefaction of the organic matter; hence the origin of the phrase of such a soil being a *hungry* one.

Let us now take a summary view of the case as it stands. We have two portions of soil occurring upon the same farm, one of which is of a much *lighter* texture than the other, and still *superior* in quality when enriched with the same quantity of manure. It comes, therefore, to be of great importance to discover to what this increased fertility is owing. Is the superiority owing to the organic or the mineral constituents of the soil? That it is *not* owing to the organic constituents, is proved by the following considerations, namely, 1st, that where both kinds of soil occurs upon the same farm, we must of necessity conclude that they have received precisely the same culture, and, consequently, as the soil has been long under tillage, the organic matter of both must long ere this have assumed the same character all over the farm, in so far as it is not affected by the mineral matter; 2nd, as the same varieties occur through the whole line of country for some considerable distance, and embrace portions of various farms, and, consequently, must be subjected to considerable diversities of cultivation, and hence likewise must contain equally numerous varieties of organic matter, the same superiority could not by possibility exist in all situations, if it were not owing to some peculiarity of the mineral or fixed constituents. Let us endeavour, therefore, to discover what this peculiarity is; and before proceeding to lay down any suggestions, I may observe generally, that the subject is of much greater difficulty than one would at first imagine, especially to a person unacquainted with chemistry. Such persons are extremely apt to suppose that the science of chemistry can do every thing, that we have only to take a substance, no matter what it be, and introduce it within the magic circle of a *laboratory*, and, at our bidding, it will resolve itself into its primitive parts, and inform us as distinctly as if gifted with the power of speech, not only of its mode of formation, but of every other particular with which we are desirous of becoming acquainted. That such is not the case, is, alas, too true, and that this remark is peculiarly applicable to soil, I may confidently assert. For instance, to give an example of one of the insurmountable difficulties which are constantly presented to us, I may mention, that one of the constituents of soil may be derived from three different sources, and it is often of the greatest consequence that the agricultural chemist, should be capable of determining from which of these it has been derived; but how to do this is a perfect enigma. In the case in question, I have hitherto confined my investigations to the different geological origin of the two soils, not only because this is the cause to which the difference or fertility is uniformly ascribed by the farmers themselves, but likewise because it is by far the least difficult. 1st, we have abundant proof that the soil upon the trap has been produced "*in situ*" by the disintegration of the rocks in the immediate neighbourhood; in fact, the production of soil is still proceeding from the weathering of the rocks where they are exposed, and from the breaking down of the stones (derived from these rocks) which occur in abundance throughout the soil.

2nd, the origin of the alluvium, associated with the coal formation, is much more obscure, for as the soil is in both instances the same in its constitution,

namely, a mixture of sand and clay (which is in fact the case with all soils,) it might be supposed that the soil in the valley originated from the decomposition of the Pentland trap, and had been deposited above the strata of the coal-formation through the agency of water, in which case, the argument as to the difference in fertility depending upon difference in geological origin would of course fall to the ground. I am happy to say, however, that we are not left in doubt upon the subject, but possess most satisfactory proof, that both the alluvium and diluvium connected with the coal formation, has come from the west and not from the north, as would be the case were any part of it derived from the traps of the Pentland Hills. This is manifest by the direction of the strata of sand, clay, and gravel wherever they are exposed by sections either natural or artificial, for, in all, they slope from west to east, and is still further proved by the fact of the boulders and pebbles being composed of greenstone and sandstone, the former of which does not occur on this side of the Pentlands, except in the neighbourhood of Loganhouse burn, from which it could not have been derived, and the latter of course belongs to the coal formation itself. We are therefore, I think, fairly authorised to conclude, that the geological origin of the two soils are quite distinct.

Let us now see to what extent chemistry can assist us in explaining the difference in fertility. For this purpose, I have examined the stones which occur dispersed throughout the soil, and which, as I have already observed, consist of compact felspar, claystone, and felspar porphyry, together with a species of conglomerate formed of splintered felspar, cemented together by veins of quartz and calcareous spar. To this conglomerate and the compact felspar, I think, we must trace the increase of fertility. In reference to the conglomerate, I find that it is undergoing decomposition with great rapidity, and, in this manner, the stones lying on the field become covered with an impalpable powder of a reddish colour, which is very greasy to the touch, and is evidently what may be termed a fat marl. According to my analysis, it contains, in addition to alumina, silica, and a small quantity of oxide of iron, carbonate of lime, to the extent of about 5 per cent. and sulphate of lime. As it is derived from the disintegration of felspar, it will contain also one of the alkalies, either potash or soda. I have proved the non-existence of potash in any appreciable quantity, and we may hence conclude that the alkali in this case is, chiefly at least, soda. That this substance contains all the ingredients necessary to fertility, is evident, and, moreover, it is a curious fact, that my analysis corresponds in many respects to Gerar's published analysis of Nilotic mud, whose fertilizing properties are too well known to require any detailed description. Now, as the rocks in Egypt abound in granite and porphyry, it comes to be a very interesting question, whether our most fertile soils are not for the most part derived from the disintegration of felspar. It would however, require extended and very careful investigation before we should have any right to draw such a conclusion; and I merely throw out the hint in this place, in order to put persons on their guard, and induce them, when opportunity offers, to ascertain, if possible, the geological origin of any peculiarly fertile soil which may come under their notice. There are several interesting observations which have yet to be made in reference to the two kinds of soil in this neighbourhood, such as their capacity for heat and moisture, which I shall make as soon as opportunity offers, and, in the event of their being attended with any interesting result, I shall lose no time in communicating them.

THE FARMER'S BENEVOLENT ASSOCIATION.

There is perhaps no class in society by whom an association of this kind has been more required than that of the agriculturists. For who, when prosperity smiles upon them, and even when it does not, are more hospitable, more privately charitable among their labourers and in the village in which they reside—or who make a greater outlay in improvements or in the better cultivation of their farms than the Norfolk farmers, casting their bread upon the waters in the hope of finding it after many days? Better experience has taught them that their occupation, like mercantile pursuits, has its cycles of prosperity and adversity, and to alleviate as far as human power can, the misfortunes which fall in the course of time even on the most careful, a certain number of occupiers commenced a few months since the foundation of this society, which Sir Charles Clarke suggested at the last annual meeting of the Mitford and Launditch Society, and aided by his munificent donation of an hundred pounds. Since this auspicious commencement, those agriculturists who undertook it have been quietly and successfully pursuing an object which, if supported, as we can scarcely doubt, will establish a society capable of conferring infinite comfort on those afflicted by pecuniary misfortunes. We would most strongly urge all our agricultural friends to consider well its objects—the relief of their widows and orphans, when perhaps the sudden hand of death may deprive a little family of its father, the wife of her husband, at a time when age or the difficulties of life may not have enabled him to provide for them, or when his prospects may have begun to brighten—then it is that the feeling of utter desolation and destitution will be softened by this society, and in proportion as it is supported during life, so will the amount of assistance be the larger in case of need. We think that the objects of the society have been hitherto by some mistaken. It has been thought to be in the nature of an Assurance Society—no such thing. It is purely a Benevolent Society, by which cases of real suffering may be relieved, and we feel assured, knowing tolerably well the kind-hearted character of the class to whom the appeal is made, that the farmers will be anxious to assist in carrying out its objects, while we trust that those landed proprietors who may not hitherto have given it their aid, will as readily follow the example of those noblemen and gentlemen who have already sanctioned it by their names and their substantial munificence.

The first annual meeting was held on Wednesday, Sept. 29, at East Dereham; it was attended by Lord Sondes, Sir Wm. Folkes, Sir C. M. Clarke, R. Metford, Esq., H. Coldham, Esq., T. A. Stone, Esq., of Lon. J. Weyland, Esq., Major Loftus, J. Hudson, Esq., H. Day, Esq., Rev. P. Gordon, Rev. — Edwards, Rev. H. Barnwell, Rev. — Knatchbull, Rev. W. Gurling, Messrs. Hastings, Long, H. Overman, Beck, Scales, Kendle, Griggs, Grounds, Salter, Royle, B. Francis, Chamberlain, &c.

Lord Sondes having been elected Chairman, after expatiating upon the usefulness and advantage of the proposed Society, and his desire to co-operate and render all the service in his power, called upon Sir C. M. Clarke to propose his resolutions. Sir Charles, in an eloquent speech, enforced the propriety, indeed the necessity, of farmers following the example set them by every profession, trade, and mercantile community in the kingdom, each of which had their benevolent association and fund. And well it was so, for it had been his lot to witness men who had ranked high and lived in luxury in his own profession, reduced with their family, by unfortunate circumstances, and gladly relieved from the fund they had assisted to establish in their prosperity. Farmers had much to contend against—even the elements might contribute to change their position in society, and circumstances over which they had no control might oblige their widows to have recourse to the fund raised by the Benevolent Society. In a very animated appeal Sir Charles enforced the necessity of farmers making the cause their own, and that

although they might be aided by the clergy and gentlemen of the county, still they must bear in mind that upon their own exertions depended the success or failure of the institution they were met to establish.

Sir Wm. Folkes fully concurred with Sir C. Clarke, and should take great interest in the carrying out his propositions. Sir William warmly eulogized Sir Charles' benevolent intentions and munificent donation, and moved that he be elected President. This proposition was seconded by R. Metford, Esq., who powerfully urged Sir Charles to accept the office, and stated the good results that were sure to follow. The hon. baronet ultimately accepted the office.

It appeared that the donations and annual subscription already amounted to upwards of 400l.

Judging from the zeal evinced at this meeting, little doubt remains that the anticipations of the worthy founder of the society will be fully realized.—*Norwich Mercury.*

ON FOLDING SHEEP.—I am not so far an advocate for folding as to think it right in all situations; particularly in small enclosures, where driving the sheep to and from fold might materially injure them, and destroy a great deal of grass by trampling on it. I am ready to acknowledge that a greater number of sheep might be kept on a given space of land, divided into small inclosures, by laying them in small parcels, than if kept together in one flock and fold. Acknowledging this does not prove that folding in other situations has not its advantages, particularly in an open country. In such a situation there is not the same injury done by treading down the grass as in small fields; but, on the contrary, the farmer is enabled to manure such part of his farm as he thinks proper, particularly that which lies at a distance from the farm-yard, and which seldom, if ever, has the dung-cart going on it. Mr. Young observes in his *Annals*, "I believe the reason why farmers are such warm advocates for folding arises from the power it gives them of sacrificing the grass land to the arable." This I do not agree to, as on many farms the sheep are supported more from the arable than the grass land, and often folded on the latter. Taking the sheep off their feed to lodge in the night we might think of great use, as it prevents dropping their soil on the pasture (what our shepherds here term *stretching* their food), which we look upon as of great use at the time when we are feeding our sheep on tares, clover, turnips, or any artificial food. I always caution the shepherd, as soon as the sheep have done feeding, to drive them off immediately, and not let them lie down or stop to soil their food. Some shepherds are not so careful; in such cases, I observe the sheep never eat clean. I believe there are few animals (indeed, I know of none, except swine) which like to feed where they drop their soil; and it is fair to suppose that the All-wise Disposer of events has so ordered that the brute creation should be endowed with that degree of instinct, which enables them to refuse such food as is not wholesome. This we have an opportunity of ascertaining when we fold on the grass lands. The sheep always refuse the first shoot of grass after folding, and will not take it while they can get any other; and, if obliged to feed on it, it is certain to cause the flux. Another advantage arising from folding is keeping the sheep confined in the fold, particularly in the autumn, till the hoarfrost and heavy dews are gone off the grass, which prevents the disorder here called red water, and which in some places is called the blood or white water, in fact the dropsy. This disorder, I believe, most sheep are liable to, and is caused by taking into the stomach too great a quantity of fluid. Many other reasons might be advanced in support of folding; but I hope what has been stated is sufficient to prove that the practice has some merit. And now I beg leave to state the quantum and value of folding. Just twenty South Down sheep (if a larger sheep, a less number will do) will fold one rood per night; 3,200 will fold one English acre per night. We value the manure at from 32s. to 50s. per acre; the goodness of which depends much on how the sheep are kept; if kept

on artificial food, such as tares, rape, clover, turnips, &c., they will drop more soil than if fed on grass only. Supposing we estimate the folding at 40s. per acre, it will amount per year to 4s. 6³/₄d. per sheep, 22l. 16s. 3d. per hundred, or per thousand 223l. 2s. 6d. This calculation is made, supposing the sheep are folded through the year. If it is a breeding flock it might be well to omit olding five or six weeks immediately after lambing, as the young lambs might suffer from being trampled upon, and from driving to and from fold would often lose their dams, and suffer in that way more than if they remained quiet. I have often disputed the practice of folding with the late Mr. Bakewell, who always, to make use of his phrase, said "It was robbing of Peter to pay Paul;" and there we stopped. But if I had not to boast of bringing that truly celebrated breeder over to my opinions, I can say that no argument I ever heard him or any other person advance in the least altered mine.—J. ELLMAN.

EARLY THRIFT AND FUTURE GAINS.

SIR,—If I have not before expressed any public opinion of the advantages offered to the agricultural community by the formation of a "Farmer's Fire and Life Insurance Company," it is not because I have entertained any doubt as to the expediency of such an institution, but that I was desirous, from an extensive acquaintance with numerous agricultural districts, of bearing personal testimony to the uniform approbation with which it has been everywhere received, not only by land-owners and influential farming tenantry, but by the husbandry classes themselves.

Without extending this letter to an inconvenient length, I may be permitted to offer a remark or two on one branch of the Life Department which appears to me to present to the labourers' consideration a signal temptation to thrift, and which, I am happy to say, I have succeeded in impressing upon the practical conviction of no small number of that indispensable section of our humbler brethren.

The certainty of enjoying a provision in the hour of need, is, perhaps, one of the most exhilarating contemplations that can stimulate the energies of man, but more especially those whose daily subsistence is derived from the "sweat of their brow." Now, by the system of *Deferred Annuities*—for it is to that branch of the Prospectus to which I am addressing myself—an opportunity is offered, to the young and middle-aged, of securing their latter days from the embittering experience of parochial aid. By a weekly payment of one shilling (less than seven farthings a day) a contributor may, it seems, obtain for himself in after life an annuity of 10l. per annum; and, of course, by a proportionably increased payment, a larger sum may be receivable. There is also another part of this plan which, as it is founded on principles of liberality and equity, I have had great pleasure in bringing under the notice of the working classes. It is this: "that the whole, or any part of the money paid, will be returned to the party paying it whenever required, or to representatives in the event of death before the stipulated age." Now, the spirit of liberality and encouragement with which this proposition is characterised, has induced a vast number to begin; since they have hereby a guarantee that, if adverse circumstances shall take from them the ability to go on, they will ultimately be no losers: The nest-egg, however, once deposited, there will be few—if I know any thing of human nature—who will not strain every nerve, and submit to any personal sacrifice, rather than abandon the prospect of parochial independence. But if, from the lowest scale of weekly payments the annuity principle is extended to a class whose means will enable them to contribute two shillings instead of one, what a comfortable position does that man find himself in at the age of 50, when he can boast of an income of 20l. per annum for the rest of his days, and can point the attention of his children to such an acquisition as the result

of provident habits and youthful thrift. How much more preferable, too, is such a mode of obtaining permanent means in after life than the deceptive lures held out by Box Clubs and Benefit Societies, few require to be told who, like myself, have watched the progress of such institutions during the last thirty years: for though the Legislature has interposed its protective authority by requiring the official examination and enrolment of the rules and regulations of all such clubs, yet scarcely a month passes in which some designed infraction of the law—some case of heartless fraud, is not brought under magisterial cognizance. The most recent instance that occurs to me at the present moment is that which formed the subject of a police court inquiry at Stockport a week or two since, in which a poor old man who had been a member of a "sick and burial society" in that town for forty years, was refused the pittance of 14s., claimed on account of sickness; a man who, it seems, had all that time regularly paid his contributions, and who, according to the rules, was legitimately entitled to receive seven shillings per week. This aged and indigent applicant, on asking for one fortnight's allowance, was repulsed with the impudent intimation, "that the funds of the society being low, a majority of the members had resolved that the box should be closed, and no money be paid to the sick members!" The magistrate very properly adjudicated in favour of the poor man, by ordering the president of the society to pay the 14s. instant, or be prepared for a warrant of distress against his goods.

Now, had this indigent victim contributed to such an institution as that which I am feebly commending, he would, *ten years ago*, upon the principle detailed in the *Deferred Annuity* tables, have become the recipient of four shillings per week, "in sickness and in health," for the rest of his life; instead of which, he finds himself verging upon "three score years and ten," bereft of all pecuniary aid, and the hard-earned savings of two score years, swallowed up in a long course of deception, mismanagement, and bad faith.

This is a theme, Sir, upon which abler pens than mine might dilate with great advantage to the cause of prudence and forethought; I nevertheless feel, however humble the advocacy, that it is the bounden duty of every man, whose means of observation enable him to mark how essentially human happiness is promoted—among the labouring classes especially—by habits of industry, stimulated by perseverance in thrifty resolutions, it is their duty to point attention to those sources of personal benefit, which are founded on principles of strict integrity, and approved by names of the highest standing in the agricultural world.

With these impressions, and with much sincere inclination to forward the permanent success of the Farmer's Insurance Company, I close my letter, and will, with your permission, on another occasion, notice such other branches comprehended in the prospectus, as are deserving of attention from "the tillers of the soil."

Norfolk, Oct. 29.

FRUGALITAS.

THE IMPORTANCE OF WATER.—The best water for horses is soft, fresh, and pure rain, river, or pond water; and it is absolutely necessary, to preserve health in the stable, that a constant and ample supply should be on the premises. In order to effect this, when well or spring water is the only water to be obtained, it should be put into troughs, having some clay and chalk at the bottom, and softened before use by exposure to the sun and air. Such is the effect a change of water has been known to produce in a horse, that in some instances even the loss of a great race has been, with much show of reason, ascribed to this cause alone; and careful trainers have even gone so far as to carry with a horse, on the eve of an important engagement, a supply of the water he has been accustomed to.—*Whyte's British Turf.*

IMPROVED WATER-WHEEL.

In February last, we noticed one of those newly patented mills, erected near How-wood, and gave a brief account of its general appearance and advantages. We then stated that, as far upwards as 20 horse power, the principle had been fully tested, but that doubts were entertained by some, whether it would hold equally good, as the power increased. This has now been tried, as far upwards as a 60-horse power, and to this extent the soundness of the principle is as fully proved, as it was with a wheel of one-twentieth of that power. The trial we allude to, was made at Greenock on Wednesday last, in presence of a number of shareholders in the Shaws Water-works, proprietors and managers of mills on the line of falls, and other distinguished gentlemen of Greenock, interested in the general progress of discovery and improvement.

The wheel now under notice, is erected on one of the falls of the Shaws Water Company, on the rising ground above Greenock, and is intended to drive the machinery of a wool spinning-mill, nearly ready for the reception of its machinery, belonging to Messrs. Neil, Fleming, and Reid.

The height of fall is thirty feet, and the quantity of water used was, as nearly as may be, 13,000 cubic feet per minute. The power produced by this column of water on an overshot wheel of the best construction, would be about fifty-three horse power; there is, therefore, a balance of about seven-horse power in favour of the patent mill.

But this does not show its advantages fully. In an undershot mill, where the fall is but three or four feet, the power obtained is only thirty-three per cent. In the more favourable case of a breast mill, with a fall of ten or twelve feet, about sixty per cent. is obtained, and in an overshot wheel of about thirty feet, not more than seventy per cent., under the most favourable circumstances, is obtained; while in the case of the patent mill, the gain is equal to about eighty per cent. To this may be added, that whether the quantity of water be abundant with a low fall, or scanty with a high fall, the new mill is calculated to reap alike from both all the derivable advantages.

There is another point, too, wherein the patent mill has a very decided advantage over the common water-wheel. A water-wheel of thirty feet diameter makes about two revolutions per minute; hence to bring up the speed necessary for ordinary manufacturing purposes, a great deal of gearing must be made to intervene. This will frequently occasion a loss of three or four horse power—a loss which is avoided by giving a revolution of ninety to the first moving shaft, while all the expense of the intervening gearing is saved.

The subject of expense is in this, as in most other cases, a question of primary consideration: and, in this respect, the advantages of the patent mill are still greater than in the case of power. A water-wheel and its are suited for the woollen mill to which we have been referring, would cost about 1,500*l.*, or adding the pipes for conveying the water to the wheel, about 1,700*l.*; while the price of the patent mill, with its conducting pipes, will not exceed 500*l.*

As the height of the fall increases, the advantages of the patent mill increase in a still greater proportion.

The four most prominent advantages of the patent mill over the water-wheel, are, first, its first cost is a very great deal less; second, it produces more power with the same column of water; third, it is better adapted to every kind of fall; fourth, it adapts itself by the regulating power of its governor far more effectively to the varying work it may have to perform. Its secondary advantages are, that it is more speedily fitted up; it requires far less room, inasmuch as its pit may be floored over, and no space lost. The quantity of material being small, it admits of easy removal, and its simplicity of construction is so great, and its friction so little, as to remove almost everything like tear and wear.

On the whole, we conceive this is one of the most remarkable improvements ever made in the application of

water as a moving power. The wasted resources of mountain streams which, both in this and other countries, it may bring into useful operation are incalculable; and we feel we are but doing our humble duty to science in giving it all the publicity we can. The improvement is not speculative; its practical working may now be seen in this country, from a mill of three horse power up to one of sixty, and from a fall of five feet up to one of thirty; in all cases the results being in proportion to the weight of the column of water in motion.—*Paisley Advertiser.*

PROBUS FARMER'S CLUB.—On Saturday evening last, a paper was read to this society, on the *best method of preparing the land for wheat*, by one of its members. The lecturer first noticed the soil in the neighbourhood of Probus, and showed that the preparation for wheat on one kind would not do for another. "All light soils," he said, "should be well cleaned, and sowed to some green crop, which should be eaten on the land. Two advantages would be derived from this plan,—the enriching of soil from the droppings of sheep, and the imparting a degree of solidity to it, which is particularly desirable for wheat lands."—With regard to manure, the lecturer was of opinion, that a great deal would depend upon the nature of the soil, as well as on the kind of manure which has been commonly employed. He did not approve of a frequent repetition of either lime or compost; but considered a change very desirable. "When lime is employed," he said, "that it should not be in less quantities than 130 to 150 bushels to a customary acre. On stiff heavy soils, the first thing would be to properly drain, clean, and level the land, so that there be no place left where the water might lodge; and if of a rich nature, the application of manure should be in a much less quantity, since experience has shewn that strong dressing in rich land would only be productive of an increase of straw and a loss of weight in the grain. The application of lime, he said, was beneficial to the production of wheat, and the improving the quality of the grain; and he was of opinion, that the best time to apply the lime is in the summer season. The land should afterwards undergo a ploughing or two, by which means the lime would properly be combined with the surface soil previous to the sowing of the seed."—The time of sowing the seed, and the quantity per acre, were also briefly considered. With respect to the crops which usually precede wheat, they are either turnips or rape—the former he considered the best preparation if they can be sown early in June; but if this cannot be accomplished, he would recommend rape.—In the discussion which ensued, it was the opinion of many of the members, that rape was preferable to turnips, on every account, being a better food for sheep in the first place, coming earlier to maturity in the second, and being more easily grown and at less expense in the third. The use of lime was also very freely discussed, and the opinion of the majority of the meeting was altogether against the long-established belief that lime, to have proper effect on the soil, should be used, if possible, in a caustic state. Some plain and striking facts were adduced to shew, that it acted much more beneficially after being exposed to the atmosphere and rendered perfectly *effete*, than when placed quickly into the ground, as soon as it can be got into a powdered state.—The practice of paring and burning was also discussed. This practice is a very prevalent one in Cornwall, and its indiscriminate application in sound dry light land, already clothed with sweet herbage, was generally condemned; but upon all fen, bog, or moory lands, and on many of our heathy commons and wild wastes, the conversion of grass to tillage should be universally commenced by paring and burning. The diseases of wheat were also considered, and particularly the smut or collybran, which, if sown with the seed, will generally infect the plant. Several instances were adduced to prove this; and the numerous remedies recommended, such as the solutions of

the sulphate of iron, copper, and zinc were also considered. But the general opinion of the meeting was, that a good washing was all that was required; by which means the light grains were brought to the surface, and being skimmed off, as long as they continue to rise, the best and perfect seeds were preserved free from the collybran.—The next meeting of the club will be held on the 14th of November next, when a paper will be read on the Draining of Lands.

HALL'S PATENT HYDRAULIC BELT.

We did not notice in our last the experiment of working this draining machine which was made at Salter's Lode, a fortnight ago, in the presence of a number of gentlemen assembled for that purpose; as we waited until a second trial had taken place before a committee of the Bedford Level Board, on their voyage through the South Level.

Our scientific readers, and indeed every one connected with the fens, are aware that the invariable mode of drainage hitherto adopted consists in dashing the water upwards, by means of a revolving wheel, from the interior drain into that which is to carry it to sea. It is obvious that the greater the difference between the level of the two waters, the greater is the impediment to be overcome. This difficulty increases, not merely in proportion to the difference of heights, but in a much greater degree. The steam engines which have been placed in several large districts have been applied on the same plan, and have merely substituted a greater and more constant power than that of the wind engine. In the ordinary working of either (steam or wind) there is not merely a higher head of water to combat with, but also some of the water thrown up by the wheel falls back again, and thus not only a portion of the power is lost but acts in an opposite direction, and impedes the working of the mill.

The advantages of the hydraulic belt are two-fold—first, none of the water is lost; secondly, it can work against a greater head of water than the ordinary wheel could possibly do. It consists of an endless woollen belt, made of material very similar to a common blanket, revolving round two drums, one immersed in the water from which the drainage is to take place, and the other just above and close to the channel into which it is to fall.

In taking the comparison of the different districts in the fens, they should be classed according to the different heads of water each has to throw against; for instance, it would not be right to compare the Padnal engine with one required for Downham Fen, because the Padnal engine has only to throw against six or eight feet, whilst the Downham Fen engine has to throw against a twelve or thirteen feet head. Magdalen Fen is about the comparison that should be drawn; it has the same head to throw against as the Downham Fen, it contains 4000 acres, and is supplied with a steam engine of 40 horse power, with a wheel. This gives the proportion of 100 acres to one horse power. Now, this engine is hard pressed to drain Magdalen Fen in wet seasons; according to this calculation it will be generally inferred that Downham Fen will take a wheel-engine of about 15 horse power, as it is about 1,500 acres, exclusive of drains, or 1,600 acres, with drains. The quantity of water thrown up on the

latter day with the belt was about 850 gallons per minute, which was effected with the engines working at three horse power; they are going to place extra drums upon the shaft, that they may drive more belts in wet seasons, these drums may be thrown in and out of gear as may be required. They calculate that the engine will throw above 2,400 or 2,500 gallons per minute, a quantity which appears, after going into the calculation of the depth of rain that falls, to be more than sufficient to drain Downham Fen in the wettest seasons. This, it is expected, can be done with about eight horse power; thus saving nearly one-half in the first cost, and effecting a considerable diminution in the cost of fuel.* The quantity of fuel that would be required is about three quarters of a ton in twenty-four hours, to the whole power of the engine. The whole cost of the belts will be about £20 to £24, and if they last two years, would not be very expensive to renew. They are, moreover, capable of being repaired. For single farms, the belt will answer well to be driven either by steam or by horses; one great advantage which it has over the wheel is that the water may be drawn from any depth, so that the drains may be deepened easily, or when they are clogging the land, it may be done without having to scoop the water from the pits. Mr. Glynn's calculation for the power required for fen drainage (for instance, March Fen) where the head is not high, is 100 acres per horse power; therefore, according to his view, Downham Fen would take an engine of fifteen or sixteen horse power; but it may be proved that by employing the belt about eight horse power only will be required. A trial through this winter will be a good proof. It is intended to be made, and we shall endeavour to report progress as it goes on. At present we can only say that the trial seemed to give great satisfaction to the Bedford Level Committee, who viewed it.

It is unnecessary to point out the value and importance of this invention, if its success during an extended trial shall be equal to what appears on a short one.—*Cambridge Independent.*

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I feel much obliged to the honourable Capt. Capel, R.N., calling my attention to the omission I have committed in not having given the mode of making the lime water. It is formed by taking

Lime, half a pound,
Boiling water, twelve pints.

Pour the water on the lime, and stir them together; immediately cover the vessel, which should be an earthen one, and set it aside for three hours. Then preserve the liquor upon the remaining lime in well corked bottles, and decant off the limpid solution when wanted for use. I should recommend Capt. Capel to give the lime water and common salt a full and fair trial, as in every instance in which I have tried it, it has been successful, and I have had some cases very far advanced in the affection, and fast sinking under its effects.

I remain, Sir, your's most respectfully,
THOS. MAYER, SEN., V.S.

Newcastle-under-Lyme, Oct. 6, 1840.

* The cost of a steam-engine, including the building and fixing for purposes of drainage, is about £100 for each horse power.

POTATO MEAL FLOUR.

SIR,—It appearing by your "Mark Lane Express" of the 14th of September last, that Foreign potato meal or flour is now brought into notice, and its value and use ascertained, and that considerable importations are made, and within the last three months upwards of one thousand tons of it have been entered for distillers' use, producing British spirits equal to Cognac brandy, it may not be improper to state, for your information and that of your agricultural correspondents, that the process of it is not new, it having been practised long since, and is improving on the continent, particularly in Germany and in France, where some excellent and strong syrup is made, equal to that of sugar, from the potato meal or flour, which being converted into sweet liquors, superior to that from malt, is made to produce the fine spirits, as well as various vinous liquors, cyder, beer, ale, and vinegar; and by importing the meal or flour at a low duty, this first material being the potato manufactured into meal or flour, the British grower of the roots and manufacturer cannot compete with the foreigner; and the agriculturist will find that his productions in the United Kingdom will be supplanted, and malt and barley will be in less request than formerly, to the prejudice of the revenue of customs and excise, whilst the foreign potato is manufactured abroad to be imported as it is now at a very low rate of duty, which is only twenty per cent. on a declared low valuation and estimation. This flour, so imported, may be made a cover for articles of similar appearance and quality, particularly foreign starch and halfpowder, which would otherwise be subject to 9l. 10s. per cwt. in protection to the British grower and manufacturer. Being made, moreover, in a small compass, the British trader is prejudiced in the freight, landing expenses, and other charges, and the revenue lessened by the present duty on the meal or flour, more than if the raw potatoes were imported at the rated duty of 2s. per cwt. On every consideration, this new system of importation deserves to be well considered and represented in the proper place.

I am, Sir, your's respectfully,
A MANUFACTURER.

ON DRAINING.

SIR,—I have some meadows that require draining. The subsoil is clay upon limestone, with a gentle declivity. I will be obliged if any of your numerous correspondents would inform me, through your Journal, how I am to set about them, and to make them sufficiently dry. What width and depth must I make the drains, and how are they to be filled up, whether with tiles or stones? and what distance are they to be cut apart, and whether in a perpendicular or horizontal direction?

I am, Sir, your obedient servant,
A SUBSCRIBER.

Glamorgan, October 27th, 1840.

MANGEL WURZEL.

SIR,—I shall feel obliged if any of your numerous readers will answer the following questions on the preservation of Mangel Wurzel during the winter.

What is the proper time for drawing?

What is the best method to preserve the roots from frost, &c., during winter?

Should all the roots be cut off, or only slightly trimmed?

Early answers to the above will greatly oblige,

Sir, your obedient servant,

Sussex, Oct. 28.

A CONSTANT READER.

DIARRHŒA IN LAMBS.

SIR,—If my mite of information on the above subject is of any value to your correspondent, "An Old Subscriber," I give it you for his benefit. The complaint is very common, but arises from a variety of causes, and assumes different degrees of severity, dependent on the particular cause from which it originates; irregularity of keep, viz., sometimes gorged, sometimes stinted, by which the digestive organs become weakened, is one cause, so that no food will agree until the tone of the stomach is restored; too plentiful a supply of young green crops (more especially if recently pulled) without a sufficiency of dry, hearty food, whereby to correct the influence of the watery proportions contained in them; colds, to which, in the autumn, from the hasty transitions from heat to cold then generally prevailing, I attribute the disease more than to any other cause, and, proceeding from which, is generally most injurious and fatal.

To the superficial observer the effects from these three very different causes will appear nearly the same, but a moment's reflection will teach us that the remedies must be as opposite as the causes—if the disease proceed from the first-mentioned, reason would suggest the trial of good sound food, such as sainfoin, either in grass or hay, beans, or Swedes fully ripe, given in moderate quantities, and strictly regular; in the second case a lessening of the quantity of green food, and a more plentiful supply of dry-aided, if necessary, in both cases, by two large table spoonfuls of the following mixture, given twice a day:—

Prepared chalk, one ounce,
Powdered catechu, half-an-ounce,
Powdered ginger, two drachms,
Powdered opium, half-drachm,
Mixed in half-a-pint of peppermint water.

This receipt is taken from 'Youatt's Treatise on Sheep,' and I have found it answer well. If, however, the disease should be the consequence of colds, which are usually accompanied in animals with chills, thereby affecting the whole system, fever will be found to exist, which very quickly advances to inflammation of the bowels; the symptoms here are frequent small discharges of a slimy nature, often mixed with blood, attended with violent straining in evacuating them, which if not immediately checked, in the majority of cases, will speedily terminate in death; an indisposition to move or feed, dulness of the eyes, lopping of the ears, and occasional grinding of the teeth, are concomitants of the above symptoms in the advanced stages of the complaint, and when the grinding of the teeth is exhibited I would at once slaughter the animal, never having known one recover where this has taken place. The remedies I have used with success here are repeated bleedings of about half-a-pint each time, and doses of one ounce of Epsom salts every other day, with twenty or thirty drops of laudanum, where the straining is violent. If cure is to be expected the animal will show symptoms of amendment by the third day, and should then be supplied for a week with half-an-ounce of flour of sulphur per day, in bran or malt dust, if it will eat it, otherwise drenched with it mixed in warm gruel. I would recommend the immediate separation of all that become affected from the flock, to be placed in a dry, warm situation.

Much patience, such as few men are possessed of, is required where a flock of sheep is to be subjected to medical treatment, and that flock-master will be indeed a lucky man who will be enabled to get his directions carried into practice, unless he is personally present, and constantly watching the progress of the disorder, and the effect of his treatment; the sheep are, perhaps, numerous—are always obstinate, and the shepherd generally more so—being less inclined to administer the medicine than the sheep are to take it, and he who hopes for success in adopting any remedy, discovered since the days of Laban, will hope in vain unless he uses the most untiring individual exertion.

I am, sir, yours,

Whitchurch, Hants, Oct., 1840.

J. TWYNAM.

CHEAP AND NUTRITIOUS FOOD FOR HORSES, CATTLE, AND SHEEP.

GORSE OR WHINS.—This ever-green plant, from its habits, and nutritive qualities as food for horses, neat cattle, and sheep, is highly deserving of attention. It will flourish upon all kinds of soil, —its produce varying, at one year's growth from ten to fifteen, and at two years' growth from sixteen to twenty-eight tons per acre. Horses fed on it, ground or cut, will be found fully as equal to thorough work, and be in full of good condition, as when fed on the very best hay. Milch cows when supplied with it, as a substitute for hay, will be found to yield a larger quantity of milk and butter, richer both in flavour and quality. This plant has from time immemorial been used as provender for horses in many parts of the principality, and of late years its use as fodder for neat cattle has been partially adopted; but in those cases it has been looked upon more as a weed, available for that purpose, than as a plant deserving care and attention in its cultivation. It is, however, a plant capable of producing heavy crops of rich nutritious forage, at comparatively the most trifling expense, and upon land otherwise of little, if of any, value to the farmer. To the agriculturist who would make the most of his land, gorse will be found a most valuable auxiliary; it will make him, to a certain extent, independent of the losses so generally produced by the failure of his turnip crops, in consequence of the ravages of the fly. A few acres of gorse, proportionate to the size of a farm, under a systematic rotation of crops, will invariably enable the farmer effectually to guard against that contingency, and that without any loss from a waste of fodder. Gorse is equally proper for use at one as at two years' old; and its produce, at two yearly cuttings, will be found much upon a par with one cutting of two years' growth, and *vice versa*. Thus, supposing a farmer to have sixty acres of land in his occupation, and that out of this, after allowing two acres for the house, outbuildings, garden, haggard, &c., there should be ten acres, from excessive steepness or some other cause, unfitted to be brought under a regular system of cultivation,—these ten acres, if under gorse, would afford for the farmer, if properly managed, a reserve of green food for his stock, that at one year old would amount to from 100 to 150 tons, and at two years old, from 160 to 180 tons, which, from the nature and habits of the plant, would not be liable to failure, or to be deteriorated by any changes of weather. Should the annual green crops, cultivated for winter fodder, meet with no check from the fly or other causes, when the gorse will have arrived at two years old, it must be evident that a very large addition to the ordinary live stock kept upon the farm will be required for the consumption of so great a quantity of forage as will be produced upon the ten acres of under gorse. Another great advantage resulting from the culture of this plant will be found in the facility it affords the farmer to make the best of whatever *extra* stock he may have at the beginning of the winter, which otherwise a scarcity of fodder would prevent his doing; for, in that case, he would either be obliged to deteriorate his whole stock by stinting them in their allowance of fodder, or to dispose of what he had extra at whatever they might bring, and at whatever sacrifice. From such a dilemma

the cultivation of gorse would save him; for, as before observed, it may be used either at one or two years growth, that is, between cutting and cutting, with equal advantage—two cuttings at a year's growth being equal to one at two, and *vice versa*.

Though gorse will flourish upon all kinds of soils, rich or poor, wet or dry, yet it delights most in dry, sharp, shaly soils, such as are formed by the *debris* from mountains, and found on the steep sides of hills and valleys in all mountainous districts. On cold, wet, thin, ramelly soils, which appear almost unfit to support any kind of vegetation, gorse will flourish luxuriantly, provided the surface of the land be thrown up into ridges, so that the crown or top of the plant may be above the water. The ridges should be formed something similar in shape to those prepared for turnips.

The best time for sowing is the latter end of March or the beginning of April, and the quantity of seed, from three to five pounds to the acre. The common practice of sowing 15, 18, or 20 lbs. to the acre is a piece of wasteful extravagance. If proper attention be paid in keeping the young plants from being overpowered by weeds when in the seedling or tender state, one plant to each square foot, or to each quarter of a yard square, would secure a full crop; but as, generally, too little attention is paid to this, as well as many other plants used in agriculture, to sow the seed or transplant the seedlings in drills, allowing eighteen inches or two feet between drill and drill, and four or six inches from plant to plant, will be the most advisable mode, as being more in unison with the natural habits of the plant. Gorse will bear transplanting well, and will amply repay the labour by the saving effected in the quantity of seed. It will take a man about four days to transplant an acre. The seed is generally from 1s. 6d. to 2s. a pound. The quantity usually sown is enormously ridiculous. In plants, the produce of 1½ lbs. would be more than sufficient for an acre. An ounce contains above 4000 seeds.

Gorse are generally sown broadcast, but drills will be found far more advantageous, as they will enable the young plants to be kept free from quitch and other weeds, which prove very prejudicial to the tender seedlings, always materially deteriorating the crop, and very often all but destroying it. The ground in which gorse is intended to be grown should be made tolerably clear before sowing the seed, so as to give the young plants a fair start.

Gorse is, in its seedling state, a far more tender plant than is generally supposed, and should be kept free from the visitations of sheep and other cattle, as well as from being choked with quitch or other weeds. To flourish in perfection the plant should be as much as possible exposed to the action of light, and a free circulation of air, as is evidently demonstrated by the luxuriant condition when sown on the summit and sides of mounds and turf fences; there the shoots will be always found strong, full of sap, and of a dark rich green colour. This shows the advantage of cultivating gorse in drills, and in having the tops of the drills as much curbed or raised as the ground will permit. The elevation will not only tend to expose the plants to the action of light, but the spaces between the rows will promote a free circulation of atmospheric air, upon which, in conjunction with the action of light, the quantity and quality of this as well as every other green crop

so mainly depends; for this reason, generally speaking, it will be found more advisable, after the first cutting, to use broadcast gorse yearly than every two years.

It is not advisable to cut gorse the first winter after sowing; they should be allowed to grow at least until the second winter, but after the first cutting they may be cut every year or every other year as may be deemed most advisable. When it can be conveniently had, a top-dressing with coal ashes, coarse gravel, or even rammel, when they have been cut, would be found very beneficial as tending to nourish the plants, and to keep down weeds. An occasional hoeing, for the same purpose, should also be adopted. The kind of gorse used for fodder is called the French gorse, and the seed may always be obtained from any respectable seedsmen. That from Dublin is in general deemed the best.

The method of preparing this plant as fodder, generally throughout the Principality, used to be by crushing it in a mill turned by water; the shaft of the water wheel being supplied with three rows of iron spikes, which, turning in the centre of a strong box provided with rows of similar spikes, effectually crushed the gorse as it was put into these terrific jaws. It was afterwards taken out from an opening at the lower part of the box or chest. One great objection to this method was the rapidity with which the plant thus crushed became sour, in which state it was rejected as food by the animals for whose use it was intended. Another method resorted to was called chopping; this was performed on the end of a large block of wood, by means of knives placed on the end of a large wooden mallet, with which the gorse, when placed on the block, was chopped or minced. The chief objection to this mode is the time and labour required. There is likewise an inconvenience, especially when neat cattle are to be fed, resulting from the uncertainty as to the size of the food when cut, some portions being unavoidably much larger and longer than others. The plan now in general use is that of cutting the gorse by means of machines in every respect similar to those used in cutting hay and straw, the only difference being that the knives are constructed somewhat stronger than those in general use for the latter purpose. These machines are turned either by men, horses, or water. Their cost varies from £4 to £7, and the machinery requisite to work them by horse power will amount to from £10 to £15 more. With horse or water power, there ought to be, besides a gorse and straw cutter, a mill for grinding and crushing oats, beans, a thrashing and clover mill, &c. These machines, by whatever power moved, both as it regards economy and quality, are by far the most efficient in reducing gorse into a proper state for feeding the different animals for which it is intended. They are now so constructed in many parts of the Principality, that the cut fodder may be regulated at will as to the coarseness or the fineness of the size. It is generally found that both horses and neat cattle feed with much greater avidity upon the gorse when cleanly and regularly cut than when reduced into a consistency nearly approaching a pulp by bruising or crushing. These machines have, therefore, a decided advantage over the crushers, independent of the gorse prepared by them not being so prone to become sour. One of them, worked by a single horse, will with great ease prepare 40 bushels in an hour. When there is no water power available

a strong ass, mule, or ox, might with great advantage be employed where there is much consumption of the prepared fodder. The saving in the keeping would be considerable.

Gorse is a heating food; and horses, when overfed with it, are apt to become affected with a difficulty in staling, a little salt should, therefore, be mixed with their food, when a great portion of it consists of gorse. Cut straw, turnips, carrots, steamed potatoes, &c., form an excellent combination with gorse, as fodder for horses and neat cattle. There is an opinion generally prevalent that when gorse begins to come into bloom it becomes unfit to be used as forage for horses and cattle. Such an opinion is erroneous, for at that period the plant is far more succulent, and will go much further; less of it, therefore, cut up with straw, will suffice. The heating quality of gorse, as green food, has been too generally overlooked, and over-feeding with it, coupled with bad grooming, been productive, in many instances, of stranguary, grease, and other affections dependent upon too heating a food. With proper grooming, and an occasional diuretic, gorse will be found to produce a large quantity of excellent green food, not liable, as was before stated, to be affected by the vicissitudes of the weather, capable of maintaining, according to the quantity of land producing it, a large *extra* stock of horses, cattle, or sheep. It has been for years used very extensively by Wm. Hughes, Esq., of Madyn, in Anglesey, as food for the numerous teams employed by him in connection with the Amlwch mines. The aspect of the country in that locality is very bleak and exposed, but Mr. Hughes cultivates gorse very extensively, in single drills, along the base of the stone fences erected on his farms, by which means he not only obtains luxuriant crops of substantial food for his horses, but he finds also that the gorse thus cultivated affords an efficient protection to the foundation of the fences against being injured by cattle or sheep.—*Roberts's Hints on Agricultural Economy.*

RYE GRASS.—A sample of rye grass was shown at the last meeting of the Yorkshire Agricultural Society, which was grown upon a cold clay soil, near the centre of the county of York. The seed was originally obtained from a gentleman of Nottinghamshire, who assured the grower of this that he had proof of its being perennial, not biennial, as by some writers stated. No rye grass that the grower has ever seen can bear any comparison with it for its luxuriance, its nutritive properties, and its early growth in the spring. In one field the grower had ewes and lambs grazing with a full bite in the last week in March; at least a month before any other artificial grasses were fit to depasture; and the grass in the field where the sample was grown would in the last week in April average in length about eleven inches, and in the first week in July would average from 3½ to 4 feet. The grower has invariably sown it, without any mixture of other seeds, at the rate of 2½ bushels to the acre. He has this year depastured with sheep two small fields of this grass, and has never had fewer than at the rate of four, and most of the season five, ewes with double lambs upon the acre, and the fields have been all summer, and now (August 4) are excellent pastures.—*Yorkshire Gazette.*

TO PREVENT THE TASTE OF TURNIPS, IN MILK, BUTTER, AND BEEF.—Never allow the cow to taste of the roots within six or eight hours of milking, but feed her immediately after each milking, and

do not give her any more of the roots at a time than she will eat in two or three hours, and be careful that she does not get any more till after she is milked again. By this method cows may be fed on rutabaga or other turnips, and no person will be able to discover the taste in the butter or milk. Upon the same principle, those who wish to feed their cattle on turnips may do so without any danger of affecting the taste of the beef, provided they will omit feeding with this kind of food two or three days previous to the killing. I have heard of cases where the beef was rendered unfit to eat, on account of the animals eating a few turnip tops or cabbage leaves before being slaughtered. The difficulty may be obviated as mentioned above.—*Jonathan Dennis, Portsmouth, U. S.*

CAPABILITY VERSUS INCAPABILITY OF LABOUR BY THE SHORT-HORN BREED OF CATTLE.

SIR,—It is much to be regretted so good a cause should have so poor an advocate, but the cause being so clear in proof, it needs but little advocacy.

The improved breed of short-horn cattle is at present but little known in the south and west of England, although it has been, and is, fast spreading over every other part of the kingdom. Districts where particular or specific breeds of cattle are raised, are put upon the defensive for their favourites, and prejudice has had recourse to several points of censure. Among these censures the assertion of "incompetency to labour," has been averred.

As to profit from merit of early maturity, and bringing the improved short-horns in the butcher's market, ripe and full of proof at from three to four years old, I shall leave it to the graziers' pockets.

And if other proofs were wanting as to their capability of labour, they are to be met with; but I shall content myself by informing bigotted breeders, that the humble individual, the writer of this (who has bred the family of the animal herein alluded to), has been enabled to find a liberal and disinterested gentleman farmer to undertake the experiment of breaking into work a two-years old steer of the improved short-horn breed, and to work him continually for about three years, and he has had the great satisfaction of seeing him perform his labour with equal ease, docility, and alacrity, to any of the known breeds of the kingdom. Since which time it has been grazed in the usual common way of feeding steers and oxen in the neighbourhood, and it is intended that the ox is to be exhibited at the next Bristol agricultural meeting show, as "a fat ox, having worked at least twelve months;" it is hoped such tenacious breeders will take the trouble to be present at such show, and convince themselves that their prejudice is groundless.

As there are registers kept of the breed of improved short-horns, breeders are informed that the pedigree of the ox is to be found correctly and truly stated in the register called "Coates's Herd Book."

HENRY COTTRELL.

Rhodyate Lodge, Congresbury, Somerset, Oct. 29.

A CHALLENGE TO ALL BREEDERS OF CATTLE IN ENGLAND.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—You will oblige me by making known, through the medium of your widely circulated paper, that I am willing to show at any time before the end of the month next ensuing, for any sum not exceeding 100*l.*, nor less than 25*l.*, a bull, and twenty regular breeding in-calf cows, all bred by myself, against any bull and a similar number of cows, of any sort that have been bred by, and are now in the possession of any breeder of cattle in the United Kingdom.

The judges to decide the matter to be fixed upon by that noble patron of agriculture, and stickler for fair play, Earl Spencer, and his lordship's friend, Sir Francis Lawley, Bart., or by whom they shall appoint. The cattle to be viewed on the farms of their respective owners, and the judges to be paid by the losing party. I am, Sir,

Your most obedient, humble servant,

JOHN PRICE.

Poole House, Upton-upon-Severn, Oct. 15, 1840.

P.S.—It is a fact well known that my cows have been kept worse through the past Summer than any other kind of cattle in this county.

TO JOHN PRICE, ESQ.

SIR,—Seeing your challenge in the *Mark Lane Express* of the 19th inst., I write to say, that on principle I cannot be induced to gamble, but if your object be the investigation of the merits of different breeds of cattle, &c., I am ready to meet such investigation, and show you my herd of short-horns, and to any others who you may bring with you for that purpose, and shall then accompany you and them, to view your herd of Herefords, and theirs also, whether Herefords or Devons, &c.

Such investigations may prove of the greatest benefit, not only to those who make them, but their report, candidly written down, and inserted in any public documents, may have the most beneficial effect for the public benefit.

I visited Hereford above fifty years ago, and was then, and continue still an admirer of the best variety of cattle (Herefords). But I consider now, and have for above forty years been convinced, that the very best short-horns—which are only a few—are capable of improving all other breeds of cattle in the United Kingdom, as well as the ordinary short-horns which are far from a good breed, and inferior to the Herefords, Devons, and others.

Though not personally known to you, I was lately visited by a Hereford breeder near Ludlow, then staying with Mr. Flounders, of Yarm, near here. Mr. Flounders having landed property in Shropshire, and from him you may learn whether my short-horns are worth looking at.

I have at present two red twin year-old bulls, out of the dam of Duke of Northumberland, which on inspecting, you may not think unworthy to be put to your herd of Herefords for one season, to give you an opportunity of testing the merits of this cross-breed. In my opinion, they would prove an invaluable cross with the best Herefords—increase the growth of the Herefords, and at an earlier age be fit for the butcher, with a less consumption of food, and quality of beef unimpaired; and also give

that breed an increased milking quality—both in quantity of milk and richness—yielding more butter. I have written this on a circular I prepared for Messrs. Fores, that you may know that I was the exhibitor of short-horns at Oxford, in 1840, and also at Cambridge last July.

If yourself and other Hereford breeders of cattle, or Devon breeds, or other breeds will favour me with an early visit, not later than the 8th of next month, before our northern long winter sets in, I should be glad to see you here; and would then accompany you to your southern climate and richer soils; for you will find my farm a poor clayey soil, unfit to grow turnips, and our winters are long and springs so late, that I never could lay out cattle at nights till after the middle of May, and sometimes (as in 1837, the 10th June) in June before we have sufficient grass for cattle; and even after winter freeing our lands of cattle for six months—keeping them constantly tied up to the stake, and some winters having no other food whatever but wheat straw and water. And this has been the case with me here at different times since I purchased this estate thirty years ago. Hoping to hear from you, and that I may have the pleasure of seeing you here soon.

I remain, yours respectfully,

THOMAS BATES.

Kirkleavington, near Yarm, Yorkshire, Oct. 23.

ON DRAINING MOSS.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir,—Sometime ago I inserted in your paper a few questions regarding Moss Draining, and beg to return you my best thanks for their insertion, and also to your different correspondents, who have returned answers thereto, and which have appeared at different times since. In the Express of 24th August, in a letter on the subject signed "An Irishman," I find the following question, "will any of your correspondents inform me how the term in and in is applied, and in fact, what is the meaning of it in breeding stock?" The term as applied here, and the only meaning I ever heard attached to it, is breeding from too near connexions; for example, when a breeder has for a length of time been breeding within his own stock, without going to the public for a change, he is said to be breeding too much in and in. I hope this will explain the term sufficiently.

In the letter signed W. M., Dublin, to whom I feel much indebted for the clear and detailed statement he has given of the plan of draining followed by Mr. Bailes and Messrs. Evans, and which, had I an opportunity of personally inspecting, I certainly would with much pleasure avail myself of the kind invitation of "A Lancashire Agriculturist near Manchester," who has so obligingly offered to accompany me to the different places mentioned. "W. M." says, "I fear the expense of using timber as for soling tiles, must be too great to pay, except localities where land rents very high," and then requests information from "An Irishman" of "what the expense is, length of drains in an acre, nature of the bog, locality, &c.?" I trust he will receive the information he desired from "An Irishman," but in the meantime I shall give him a statement of the plan I have followed, and am still following, in draining the moss I sought information regarding, which is a level lying bog, of from three to five feet deep of black moss, without any spring of water in it, and

is covered with rough grass and heather, lying in a remote, wild, situation, about 150 feet above the level of the sea, and at present is worthless. The plan I have followed, is first cutting an open ditch right up the centre of the moss, five feet deep. The subsoil I find is in some places gravel, in others, a sandy clay. I then, at regular intervals of one hundred yards, run a main drain from each side of the open ditch, across the bog, and nearly at right angles to the open ditch, into which main drains I cut side or branch drains parallel to the open ditch, at twenty-two feet apart from each other; by this plan I find I have 660 yards of drain to the imperial acre; in the bottom of the drains I lay a board of larch, or Scotch fir, which costs 1½d. per rood of 18 feet, on which I lay a tile, in the branch drains a three-inch tile, and in the main drains a six-inch one; the cutting of the drains cost 4d. per rood, when cut four feet deep, decreasing to three feet at the upper end, for the purpose of giving the drains a run; the same is done with the main drains, thereby creating an artificial fall for the drains; the three-inch tiles cost 7½d., and carting of do. a penny per rood; the six-inch ones cost 1s., the expense on the whole being somewhere about 6l. 10s. per acre; after being ploughed up I lime the moss, and on some I have already done in this manner I have had a good crop, and have no doubt, before the end of my lease, which is nineteen years, that it will yet pay me, sixteen years of it being still to run.

I may mention to W. M. that the plan he details, of draining the moss at Manchester, is not new to me. I followed that plan more than twelve years ago, but found on our porous black moss it did not answer well, the horses' feet getting down and destroying the drains, and some which I did at that time I have since drained with stones. One of my neighbours followed the same plan more than fifteen years ago, very extensively, and succeeded well; but his was a much deeper moss, and not of such an open texture as mine; he received a medal from the Highland Society for his exertions; the shape of the drains differing only in this, we left no shoulder for the turf to rest on, but made the drain of a wedge-shape, the shoulder, I found, being apt to break off and destroy the drains. Some of my neighbours have tried the same plan on stiff clay soil, and say they find it answer well.

The next thing I would be obliged to any of your correspondents for, is, information regarding the plan they would advise me to follow in breaking up the moss, after being drained; it has a very uneven, rough surface, and is very difficult to break up with a plough, the horses sinking so much, and often sticking fast altogether. If any will give me the benefit of their experience in such matters, it would render me a great service, with any hints they may think worth communicating, if it is not trespassing too much on your space. I am, Sir, your most obedient servant,

A FARMER NORTH OF THE TWEED.

P. S. I will thank your correspondents "J. B.," and "A Rutland grazier," if they will explain the meaning of the words "Pollard," and "Short," they being both terms which are not used in this part of the country, and thereby rendering their receipt for the feeding of cattle with linseed of no use to the farmers here. I may mention that last year I used some tons of linseed, which I steeped before using, twelve hours, in cold water, and boiled two hours, mixing it then with an equal quantity of ground oats, and a small portion of cut hay; the cattle did well upon it, and eat the mixture greedily, although they would not eat the pure linseed.

WEST SUFFOLK AGRICULTURAL ASSOCIATION.

(ABRIDGED FROM THE BURY HERALD).

The eighth annual autumnal show of this increasingly useful association, was held at Bury, on Friday Sept. 25. Several of the animals exhibited on this occasion had gained first prizes at the East Suffolk and other associations; but they did not here gain even the second premium offered. The place of exhibition was attended by many of the most eminent agriculturists in our neighbourhood. His Grace the Duke of Norfolk and Lord Fitzalan were on the ground.

The competition for the prizes offered for neat stock was better than that for any other premium. Mr. Stedman, Pakenham; Mr. Worledge, Creting; Rev. D. Gwilt, Icklingham; and Mr. Boby, Finborough, exhibited bulls of very superior merit in the different breeds. The Duke of Norfolk also showed, as extra stock, three splendid Devon beifers, which attracted much attention. The prize for the Suffolk cow was well contested for. Of cart stallions there was a very moderate shew. The sheep were good, but by no means numerous.

Among the horse stock exhibited, was a beautiful grey half-bred Arabian colt, belonging to Mr. John Fenton, of Great Whelmetham Hall, which excited much attention, and was generally admired. For beauty, size, symmetry, and fine colour, very few of his species are likely to surpass him.

THE DINNER.

At four o'clock about 150 sat down to an excellent dinner, served up in the Corn Exchange by Mr. T. Bridgman of the Angel Inn, Earl Jermyn, M.P., in the chair. His lordship was supported on his left by Col. Rushbrooke, M.P., Rev. Lord A. Harvey, Rev. W. Hall, Rev. H. Ashington, G. Creed, Esq., (Mayor of Bury,) W. Mills, Esq., Dr. Ranking, Dr. Probart, Dr. Hake, C. Smith, Esq. On his lordship's right were—Rev. Sir T. G. Cullum, Bart., J. H. Heigham, Esq., Capt. Heigham, T. Wilkinson, Esq., R. N. Cartwright, Esq., Rev. C. Jones, &c. Amongst the company present we observed, Rev. D. Gwilt, Rev. J. Wastell, W. E. Image, Esq., G. Moor, Esq., Col. Ray, G. B. Norgate, Esq., J. Greene, Esq., W. Adams, Esq., C. W. Jones, Esq., Messrs. G. and R. Mumford, Messrs. Youngman, Fenton, W. Cawston, Simpson, Cooper, Pritty, Fenton, Paine, Steward, R. Roper, W. Denton, Pizzy, Moses Crisp, S. Pask, S. and J. Shillito, Roper, Blomfield, Ringer, Philips, Worledge, Parker, Kerry, Burrell, Eaton, G. Goldsmith, C. Eaton, H. Crosse, Witt, Lugar, Cockrill, G. Kemble, Cubitt, C. Hine, Pearson, Golding, Edgar, Garnham, Salmon, Jannings, Miller, Lankester, Teverson, jun., &c.

The usual toasts having been given, the CHAIRMAN said no time could be more appropriate than this for proposing "success to the West Suffolk Agricultural Association." They would most of them recollect that at their last anniversary autumnal meeting, several topics of an interesting nature were brought forward for consideration and discussion. Amongst them was a hint thrown out by Mr. Harvey, of Harleston, who advocated the establishment of Farmers' Clubs. That question, if his (Earl Jermyn's) memory served him, was made as a kind of amendment on a scheme kindly recommended by Mr. Mapletoft, for the establishing schools for the education of the sons of farmers. He believed Mr. Harvey was not at all inclined to undervalue the plan of Mr. Mapletoft; but recommended a farmers' club as being the

cheaper, and consequently more practicable, and more available plan of the two. He did not wish to enter at large into the merits of these two propositions; but, however ignorant he might be on agricultural matters, he should speak freely, and hoped any opinion that fell from him would be canvassed as much as if he did not occupy the chair (*Applause*). It did appear to him that farmers' clubs were institutions admirably calculated to answer many of the ends sought to be obtained—for instance, information on various matters relating to the cultivation of the soil—as to the mode of managing particular soils in particular districts—facts respecting the admixture of soils, and the improving them by artificial manures—information respecting the various kinds of wheat and other grain, together with artificial grasses—information respecting the different breeds of cattle, and improving and fattening of stock—in short, information on an infinite variety of matters which came home, if they would allow the term, to the business and bosoms of the agricultural community, might be thus collected; and it was not unreasonable to suppose that in a short time a body of evidence and facts would be collected of great value to the agriculturists in different parts of the district (*Cheers*). It was not for him to say how far such an institution would meet with their convenience: he had merely thrown it out for their consideration, and left it entirely in their hands. His lordship concluded by repeating the toast, which was drank with enthusiasm.

Mr. S. SHILLITO asked permission of the chair to make a few remarks. He said it was the duty of every occupier to do all he could to employ the labouring poor, especially since the institution of the new poor law. Last year he took occasion to state that he thought dibbling wheat was the most beneficial mode of putting seed into the earth; he had endeavoured to carry out that opinion, and would now state the results. He had dibbled two farms, which he had the honour of holding under the Marquis of Bristol, one containing 120 acres, the other 140, and he put on, as near as he could, two bushels of seed per acre. The principal benefits he derived from the dibbling system were in not having less produce, at the same time there was a saving in the quantity of seed, and gave a much greater amount of employment to the poor man than could be done by any other process. He dibbled 240 acres with about 2 bushels per acre; whereas, had he drilled it he would have been obliged to put on 10 pecks per acre, which would have made a loss by drilling of 18 coombs (*Applause*). He employed at least 50 hands, and he put besides to this work, many women and children, which at that season (Michaelmas time) gave them an opportunity of earning a great deal, which they particularly wanted, for their rents and other bills which were at that period due. He also employed many agricultural women and children by the day, and the cost price of that plan was 6s. 9d. per acre. He would also state that he did not suffer in his crop this year by the means employed—on the contrary he had upon the whole, quite as much produce as though he had deposited 10 pecks per acre by the drilling process. On light soils, perhaps, dibbling might not be quite so profitable because it would cost more to hoe wheat that was dibbled than that which was drilled; but, taking heavy land with light land, it was, to say the least, equally profitable to dibble, and there was the pleasure of seeing a great number of poor people employed. There was another observation which he felt he hardly need make, because he knew the plan to be adopted by many

agriculturists; but as he was desirous of giving every opportunity of employment to the poor, he would name it—it was to take 30 or 40 children, at from 2d. to 4d. a day, and let them pick off the various roots, &c., that would otherwise increase. By this plan a great deal of good might be done to the poor.

Rev. Mr. GWILT said he was very much pleased with the remarks which had fallen from Mr. Shillito. Some few years ago a dear friend of his, who had passed many years of his life in London, was occasionally in the habit of coming down to see his farm. On one occasion he (Mr. G.) shewed him a nice piece of peas. "Dear me," he said, "what are these?" Mr. G. replied they were peas which had been dibbled. Upon this his friend asked him how he managed to get them dibbled, and he told him, by employing women and children. He wished to inform the present company that this gentleman had since come down into the country, become a country gentleman, and had adopted the system of dibbling his wheat upon heavy lands, and that too in a district where dibbling had never been had recourse to. He grew ten coombs an acre on an average, of the best quality, and the consequence was that his example was spreading throughout the county of Essex (*Applause*). He (Mr. G.) had long held the same opinion respecting dibbling wheat, even upon light lands; since he had dibbled wheat, he had better crops than before he adopted that course.

PLOUGHING AT BURY.

None were allowed to contest for the following rewards but those who had gained a prize at a district ploughing match:—

	£.	s.
John Sharpe, servant to Mr. W. Burrell	2	0
George Farthing, servant to Mr. R. Raynbird	1	0
Under 20—John Palmer, servant to the Marquis of Bristol	1	0
John Coulson, servant to Mr. J. Burrell	0	10

CULTIVATION.

Mr. J. Boldero, (Rattlesden) for having spade drained 7010 rods upon an occupation of 330 acres, at the cost of 70l. 14s. 1½d.	4	0
Mr. J. Boldero, for having carted and spread 1730 chaldron loads of clay, and earth, upon the same occupation	4	0

The CHAIRMAN briefly and appropriately addressed the successful and unsuccessful candidates for the various prizes.

STOCK.

Best Suffolk Cart Stallion, Mr. W. Worledge	8	0
Second best ditto, Mr. C. Groom	4	0
Best Suffolk Cart Mare, Mr. M. Crisp	5	0
Second best ditto, Mr. H. Crosse	3	0
Best 2 year old Suffolk Cart Colt or Filly, Mr. M. Crisp	3	0
Second best, Mr. Sparke	3	0
Best three year old riding ditto, Mr. Roper (Honington)	3	0
Second ditto, Mr. J. Fenton (Siclesmere)	5	0
Best Suffolk Bull, Mr. T. Crisp	5	0
Mr. Shillito, second best		
Best Bull of any other breed, Mr. Stedman	3	0
Second best, Mr. C. Boby		
Best Suffolk Cow, Mr. Worledge (Creeping)	5	0
Second best, Mr. H. Roper (Lackford)		
Best Cow of any other breed, Mr. H. Roder	3	0
Second best, Mr. T. Crisp		
Owner and breeder of the best shearling Southdown Tup, Mr. Shillito	5	0
Second best, Mr. M. Crisp		

Owner and breeder of the best Tup (same £ s. breed) any other age, Mr. T. Crisp	5	0
Owner and breeder of the best shearling tup, of any other breed, Mr. W. F. Hobbs	3	0
Owner and breeder of the best tup of any other age not Southdown, Mr. W. F. Hobbs	3	0
Owner and breeder of the best pen of five Southdown shearling Ewes, Mr. T. Crisp	5	0
Owner and breeder do. 5 shearling of any breed, Mr. W. F. Hobbs	3	0
Do. do. best lot of two year old Neat Stock, Mr. T. Crisp	3	0
Do. do. second best do. Rev. D. Gwilt	2	0
Owner of the best Suffolk Boar, Mr. C. Boby	2	0
Do. do. breeding Sow, J. H. Heigham, Esq.	2	0

The Judges for the horses and swine were Mr. Saul, of Didlington, and Mr. Teverson, of Wilbraham; for neat stock and sheep, Mr. Thomas Overman, Weasenham, J. D. Milnes, Esq., Downham, and Mr. W. Sewell.

		M. A. L. T.					October 26th, 1840.	
		1831.	1832.	1833.	1834.	1835.	1836.	1837.
BREWERS.	Barclay and Co.	97,198	96,612	93,175	99,674	106,490	107,786	100,005
	Truman and Co.	50,724	58,512	58,497	74,982	78,088	89,089	82,798
	Whitbread and Co.	47,713	53,541	50,067	49,105	55,209	53,683	47,012
	Combe and Co.	34,648	36,948	36,070	44,618	36,122	41,708	40,366
	Reid and Co.	53,109	44,420	40,816	44,210	49,430	43,945	44,925
	Calvert and Co.	30,526	32,812	31,433	31,460	33,253	30,858	32,335
	Meux and Co.	24,339	22,062	20,718	26,161	24,376	30,639	34,420
	Hoare and Co.	24,102	26,821	25,407	29,796	31,523	32,273	32,347
	Taylor and Co.	21,845	21,735	31,115	20,835	25,855	24,970	23,556
	Elliott and Co.	19,444	20,061	19,889	25,069	28,728	28,361	24,154
	Courage and Co.	8,116	7,607	7,546	8,079	8,790	9,238	21,623
	Manners and Co.	9,124	5,331	5,113	5,294	5,218	5,356	6,077
		1840.	1839.	1838.	1837.	1836.	1835.	1834.
		115,561	112,776	106,520	100,005	107,786	106,490	99,674
		98,123	91,069	89,734	82,798	89,089	78,088	74,982
		53,622	51,979	44,984	47,012	53,683	41,708	49,105
		36,368	40,716	43,425	40,366	41,708	36,122	44,618
		49,130	44,010	44,925	43,945	49,430	44,210	44,210
		30,872	31,028	31,529	32,335	30,858	33,253	31,460
		34,420	36,465	34,420	30,575	34,420	26,161	31,460
		30,310	31,008	27,320	32,347	32,273	29,796	26,821
		27,300	25,955	21,623	24,154	24,970	28,728	25,069
		25,355	22,590	10,723	21,623	22,590	9,238	25,069
		11,532	7,029	6,077	4,552	5,356	5,218	5,294
		5,704						

EXTRAORDINARY VITALITY OF SEEDS.

SIR,—Having reason to believe that some erroneous statements have appeared in print relative to the subject of this letter, I think that it will be proper in me, as well as not uninteresting to your readers, if I thus give to the public, through you, the following authentic account of my success in having raised corn from seed presumably three millennaries old:—

In 1838 Mr. Pettigrew, the well-known lecturer on Egyptian antiquities, gave me out of two small glasses in his private museum six grains of wheat and as many of barley, furnishing me at the same time with the following information as regards their history:—Sir Gardiner Wilkinson, during his recent travels in the Thebaid, opened an ancient tomb (which had probably remained unvisited by man during the greater part of 3,000 years), and from some alabaster sepulchral vases therein took with his own hands a quantity of wheat and barley that had been there preserved. Portions of this grain Sir G. Wilkinson had given to several of his antiquarian friends, and among them to Mr. Pettigrew, who as I have already stated, made me a sharer in the venerable harvest. Until the spring of 1840 the 12 corns of which I so became possessed remained among certain contemporary bronzes and images in their separate paper box, but about that time, finding myself in the country and much occupied in horticultural pursuits, I bethought myself of those ancient seeds, and resolved to try my fortune in rearing them. Now, the question being strictly a question of identity, and more or less also involving personal character, I shall perhaps be pardoned if I endeavour to satisfy the unbelieving mind by descending to a few humble details of my care and caution. I ordered four gardenpots of well-sifted loam, and, not content with my gardener's care in sifting, I emptied each pot successively into an open newspaper and put the earth back again, morsel by morsel, with my own fingers. It is next to impossible that any other seed should have been there. I then (on the 7th of March last) planted my grains three in each pot, at the angles of an equilateral triangle, so as to be sure of the spots where the sprouts would probably come up, by way of additional security against any chance seed unseen lurking in the soil. Of the 12 one only germinated, the plant in question, the blade first becoming visible on the 22d of April, the remaining 11, after long patience, I picked out again; and found in every instance, they were rotting in the earth, being eaten away by a number of minute white worms. It is a curious speculation, by the by, whether this might not have been a reawakening of dormant animal life; for it is by no means improbable that the little maggots, on which we might build such high argument, were the produce of ova deposited on the grains, at a period involving the very youth of time, by some patriarchal flies of ancient Egypt. This, however, by parenthesis. My interesting plant of wheat remained in the atmosphere of my usual sitting room until change of place and air seemed necessary for its health, when I had it carefully transplanted to the open flower bed, where it has prospered ever since. The first ear began to be developed on the 5th of July; and, although it may disappoint expectation to find that its appearance is, in most respects, similar to that of a rather weakly plant of English wheat—that called by farmers “bearded” (which, be it noted, I have since learned is sometimes known by the name of Egyptian),—still I have

no hesitation in expressing my own certainty that it is the product of one of the identical corns given to me, as I have before stated, by Mr. Pettigrew. A second ear has made its appearance since this was written, and both have assumed a character somewhat different from all our known varieties. After all, why should not common wheat claim as ancient ancestry as any other kind? and why should not the banks of the Nile have teemed, though perhaps more luxuriantly, with a harvest similar to those we now see waving on the banks of hoary father Thames? Moreover, what else, let me ask, could have been expected than that a seed should produce its like? for I have until now omitted to state, what may easily be verified by inspection of the remaining quantities of ancient seed now in the possession of others, that the grains in question only differ from modern wheat in their brown and shrunk appearance—the seeming result of high antiquity, and non-exposure to the fair. The slight differences nevertheless observable are, that the ears are less compact, the grains rather plumper, and the beards more thornlike than happens in common cases. It would perhaps be puerile were I to explain the various methods taken by me to protect the plant; as sticks against the wind, lace net against birds and insects, and a large bottomless gardenpot circling it about as a rampart against slugs: let it suffice to know, that all proper care, excluding that worst of cares, over-care, was given to it. The small size and weakness of the plant may in one light be regarded as collateral evidence of so great an age, for assuredly the energies of life would be but sluggish after having slept so long: however, the season of its sowing, spring instead of autumn, will furnish another sufficient cause; but, after making all due allowances for this drawback, I still think it very improbable that, supposing the plant a modern one, our rich soil of Albury should have produced so lightly. There are two ears on separate stalks; they are respectively 2½ and 3 inches long, the former being much blighted, and the stalk is about three feet in height.

In conclusion, I take occasion to remark, that homely as the theme may in itself be, the growing of a grain of corn, small as may be accounted the glory of a success in which man's mind can have had almost nothing to effect, and little as I can have had to communicate, still the subject will be admitted by all to be one of no common interest. If, and I see no reason to disbelieve it, if this plant of wheat, now fully developed, be indeed the product of a grain preserved since the time of the Pharaohs, we moderns may, within a little year, eat bread made of corn which Joseph might have reasonably thought to store in his granaries, and almost literally snatch a meal from the kneading troughs of departing Israel. Time, which has been no element to the mummied seed, is conquered by so weak a weapon as a straw, and its infancy and dotage meet in friendly astonishment at a humble banquet of Pharaonic bread.

Sir Gardiner Wilkinson having courteously sent me some more of the veritable ancient seed since he heard of my success, I shall hope, next year, to be able to produce two small crops, the harvest from my new grains so resuscitated, and, if I have again so great good fortune, the additional product of those ancient seeds.

Nothing, I think, needs to be added but the signature of the deponent, which I am very happy to give as that of,

Sir, your obedient servant,
MARTIN FARQUHAR TUPPER.

Albury, Guildford, Sept. 1840.

AGRICULTURAL SOCIETIES AND FARMERS' CLUBS.

Although we are compelled in most cases to abridge the record of the business proceedings at the numerous meetings of Agricultural Societies, and Farmers' Clubs, and other passing matters relative to agricultural improvement, which daily come before us, nevertheless we have given insertion to a full report of the Rutland Ploughing Match, extracted from the "Lincolnshire Chronicle."

Mr. Baker, of Cottesmore, by whom this ploughing match was established, has displayed a soundness of judgment which is worthy of imitation, by seeking to improve the cultivation of the soil as well as the breed of animals. Mr. Baker has himself been a successful breeder, and the fame of the Oakham show established by the success of its prize animals, when entered for competition at the Smithfield Show, coupled with the state of cultivation in the county of Rutland, sufficiently prove that the improvement of both branches of the farmer's occupation may be carried on simultaneously.

The meeting of the Long Sutton Agricultural Society, on the 7th inst., possesses especial interest for us, not only on account of the general business, and the sincerity and zeal in the cause of agriculture displayed by the speakers, but particularly because it ended in the establishment of one of those invaluable institutions, a Farmer's Club. G. I. Heathcote, Esq., M.P., in addressing the meeting, after having adverted to the extraordinary improvements effected in manufactures and machinery, applicable to a variety of purposes, observed—

"The prosperity of agriculture and manufactures is so linked together, that they are dependent upon one another. (*Cheers.*) The productions of nature cannot be improved by the hand of man as can those of art; but when we see the improvement already made—when we see the Wolds of Lincolnshire, which were little better than wastes and rabbit warrens, now producing the best crops that can be produced; I do not despair; and I trust that English agriculturists will overcome every difficulty. (*Cheers.*) Believe me, much may be done by finding new modes of ameliorating agricultural labour—by calling in the power of scientific exertion. Much has been done, and more may be done, in the breed of cattle. I sometime ago returned from a tour in France, and when I viewed the stock I there saw, and compared them with those I saw in your yards to-day, and considered the comfortable look, and regularity and roundness of form of yours', and the uncomfortableness and angularity of their's, I am happy to see the progress already made by Englishmen, and can only hope that they will still advance."

H. HANDLEY, Esq., M.P., in following Mr. Heathcote, said—"There never was a time when agriculture was so fashionable, when men of every rank came forward to contribute to the improvement of the soil and produce. Whilst improvements in agriculture were progressing, so was the population. Providence has blessed his creatures, and the population is increasing, and the mouths of these increased numbers must be fed, and I hope to God they will be from their native land—(*cheers*)—but they cannot be unless the produce is increased. The county of Lincoln is perhaps capable of as little improvement as any in the kingdom, and yet it is capable of some. Suppose it is but a bushel per acre, that would produce cash to the amount of a million and a half of money annually. This is a circumstance not to be lost sight of. In Ireland there are vast tracts of lands not half cultivated, and let us hope its farmers

will come forward and contribute their share. This subject is too great for an after-dinner discussion—it is one that you must carry to your homes. It is one of importance to the landlord and the nation at large."

The CHAIRMAN having proposed the toast of "The Royal Agricultural Society of England," Mr. HANDLEY again rose and said—"The Chairman having named me as connected with the last toast, I beg leave to return thanks on behalf of those who take an active interest in it; and shall say but little, except that in the second year of its existence, there were 4,000 members, and amongst the many thousands present at the meetings at Oxford and Cambridge, there were not only mechanics and persons of the humbler spheres of life, but men of the most eminent learning bringing their talents and acquirements in chemistry, geology, and every branch of science to the aid of agriculture. There we saw implements of every description used in the culture of the soil brought by the inventors in noble rivalry, and publicly exposed to the criticism of each other, and who can doubt but that this examination of each other's works is the most certain and sure way not only of judging whose are the best, but of making still greater improvements? Amongst those who exhibited implements at Oxford and Cambridge, none who witnessed those exhibitions can for one moment suppose that I make any invidious distinction when I mention the names of the Messrs. Ransome of Ipswich. They certainly have raised the department of agricultural mechanics to a point it never before had arrived at; and, gentlemen, I beg leave to propose the health of one who has taken an active part in that firm, Mr. Allen Ransome."

Mr. ALLEN RANSOME, in an excellent speech, returned thanks.

At a later period of the evening Mr. HANDLEY made some remarks upon Farmers' Clubs, the establishment of which in many parts of the country had been attended with the greatest benefits, and requested Mr. Allen Ransome to explain their objects to the meeting. He did not know that any subject could be better for any club to begin the discussion with than the feeding and maintenance of farm horses.

Mr. RANSOME.—I will make a few remarks on the utility of Farmers' Clubs. You are aware that at meetings like this the opportunities of treating upon practical subjects must be exceedingly brief, and therefore the individual finds it very difficult to enter upon them. The rules of the society were simple. Its object was to form a library for the circulation of works on agriculture among the members, and to get together practical farmers to discuss practical subjects. For instance, on the subject of saltpetre, which we discussed, we found at first a slender amount of evidence. One said honestly, I dare say, 6 or 7 bushels per acre, and when I asked him whether he had measured it, he answered no. A few remarks of the kind induced a feeling in the minds of those who had and who had not tried it to take the trouble to make the experiment, and to detail the result at the next meeting. The result was we had a change. In 20 farms in the neighbourhood the result was various: in some little, and in others a large accession of corn and straw. The question was then, how to account for the difference. Experiments discovered the truth. On light soils it was advantageous, but on natural hard soils it did more harm than good. (*Hear, Hear.*) One old farmer said he thought they would be a lot of blacksmiths, who met together, to talk about what they did not understand. He said he thought he knew as much about farming as any body, and he did not wish for any body to teach him what he understood. This same man afterwards joined the club, and often said after "my only wish is that I had had these advantages in my early days. My knowledge is much inferior to what it would have been." Another person was asked by an intimate friend, who answered, that he kept back from these clubs to see whether the neighbourhood was improved by them. He did see the improvement to the right hand and to the left, and became a member. Another advantage—there is the opportunity of meeting together, to exchange thoughts and feelings. If you have

these opportunities, is it not your duty to use them? What you want first is a person to take the chair. I would not advise you to hunt about for any great man in the neighbourhood. Look about and see for the most practical man amongst you; and whoever else comes among you let him come as a common man. You would then feel no difficulty in communicating with each other, and you would then feel the head to be part and parcel of the body. Then get a secretary to register the remarks of the meeting, in order that they may be referred to at any future time. Farmers' clubs have been a source of great benefit, and have excited in the minds of the youthful part of society an interest in the profession which has hardly ever before been realised, and if some half dozen will meet to-morrow and carry into effect the desired object, I shall be happy to make one, and put you into possession of whatever information I may possess. (*Cheers.*)

It affords us much pleasure to find that Mr. Ransome, whose great natural talent is aided by experience in the proceedings of Farmers' Clubs, coincides in an opinion which we have before expressed, in respect to the working of these institutions. "In seeking a chairman," says he, "I would not advise you to hunt about for any great man in the neighbourhood. Look about, and see for the most practical man amongst you, and whoever else comes amongst you, let him come as a common man."

There should be an absence of all restraint at the meetings of Farmer's Clubs, superiority of rank naturally occasions a degree of restraint; nor is great superiority of talent in a single individual, if constantly thrust upon the meeting, much less objectionable.

The result of the preceding remarks was, that a meeting was held on the following day, H. Handley, Esq., M.P., in the chair, who having opened the business of the meeting, called upon

"Mr. J. A. Ransome, who ably explained the nature and objects of such institutions, and strongly recommended the formation of one for the district immediately. This being approved of, rules and regulations were drawn up, discussed, and passed as forming the standing rules of the Long Sutton Farmers' Club; and it was finally resolved, that its first meeting should be held at the Bull Inn, on the first Friday after the full moon in November, to appoint a chairman, treasurer, secretary, and committee, and transact other business connected therewith. The observations made by Mr. J. A. Ransome, &c. on this subject are worth notice. By their means (Farmer's Clubs) much valuable information is diffused; different modes of cultivation are compared, and their results ascertained—improvements are suggested and made public—the interchange of thoughts, opinions, and observations, promotes good feeling, and in various ways exercises a beneficial influence. Among the objects sought to be obtained by Farmer's Clubs are the following:—to ascertain the nature and qualities of the soils and subsoils of the district—to enquire into the comparative value of different sorts of manures—to test by experiments alleged improvements in cultivation, in agricultural implements, or in the management of stock—to discover the most valuable varieties in corn, seeds, or roots, and the most advantageous rotation of crops—to collect information respecting the state and progress of agriculture, by correspondence—by the establishment of agricultural libraries, and by such other means as may be deemed expedient. In a word—to advance the interests of agriculture in every possible way; reducing theory to practice, and throwing the light of knowledge and science over the most useful and important of the arts of life."

We believe that we are correct in stating that this is the first Farmer's Club established in Lin-

colnshire. We trust they will generally spread over the whole county. It may be, as observed by Mr. Handley, "that the county of Lincoln is capable of as little improvement as any in the kingdom." We are not only of opinion with him that "it is capable of some," but further, that the *best cultivated district* in the kingdom, be that which it may, is yet capable of *very great* improvement. Exertions to improve the cultivation of the soil, upon the produce of which a daily increasing population depends for the first necessary of life, cannot be too frequently or too forcibly impressed upon the minds of those whose interest it is to raise an ample amount of produce to meet the wants of the people from our native soil. At the late meeting of the Cleveland Agricultural Society, the chairman, Edmund Turton, Esq., observed:—

"If farmers devoted the same attention to the cultivation of the soil which they did to the improvement of cattle, he was convinced their crops would be two fold—they would grow sufficient for the consumption of this country—and put an end to that objectionable and ever agitating question, the corn laws." (*Loud applause.*)

It will be in the recollection of our readers, that the Earl of Zetland communicated at the meeting of the Richmond Agricultural Society in the last year, the result of his experiments upon the application of nitrate of soda as a manure. The noble Earl has praiseworthy followed up his experiments this year, and it will be seen from the subjoined statement, that the result has been equally successful:—

"The Earl of Zetland observed that with respect to nitrate of soda, he had tried it to a greater extent perhaps than any other person. Last year he tried the experiment on a small scale, and it was eminently successful. This year he had tried it on a larger scale both in Cleveland and at Aske. Whole fields had been sown, so that he could not speak to its comparative effects. One of those fields spread with nitrate of soda (one cwt. and a half to the acre,) many gentlemen had seen. It contained a very fine crop of wheat, not producing less than 40 stooks an acre. (*Applause.*) He heard on the day previous that when the field was sown, the man had a little left in his bag, and he threw it over the hedge into a poor man's garden at Aske; and afterwards this poor man could not make out why some patches of his garden were growing much better than the rest. This was as strong an instance as he could adduce of its beneficial effects. (*Applause.*) On grass land, too, nitrate of soda was very valuable. If they sowed their initials with it, those initials would come up in grass as marked as possible. He tried it at Aske, and the grass was afterwards cut and weighed. In a remarkably good meadow field, where no nitrate of soda was sown, a given quantity of land weighed 76 stone; in the same quantity, where nitrate was sown, weighed 118 stone. (*Loud applause.*) He tried it on turnips, on this crop it had failed completely, and he had heard from the South that it would not benefit beans—but wheat, oats, barley, and grass were certainly greatly improved by it. (*Applause.*) His lordship concluded by expressing his regret that some parts of the fields of wheat had not been omitted with the nitrate, that he might have been able to have stated its comparative effects." (*Cheers.*)

It is much to be regretted that experiments generally, lose much of their value from the want of system and accuracy. A portion of a field in which any experiment is tried, should always be reserved in its natural state, in order that a comparison might be made.—*Mark Lane Express.*

ON THE ESTABLISHMENT OF MODEL AND EXPERIMENTAL FARMS.

SIR,—From a variety of circumstances, your valuable and interesting magazine for October came into my hands only this morning, which makes me fear that this communication may be too late for your November number. But I cannot delay expressing the pleasure which I feel at your affording me an opportunity, by your remarks on the proceedings of our Wester Ross Farming Society, of discussing the subject of model and experimental farms, through the medium of your magazine, so widely circulated and universally read. Your objection to experimental farms seems to be mainly in the difficulty of finding funds for their establishment; and in reply to this, I now send you my prospectus for a model and experimental farm for this northern district, which the signatures appended to it prove to be a thing not totally impracticable. Now, though we of the W. R. farm society cannot command funds for a model farm, except by raising shares (a mode to which, however, there can be no possible objection), the case with our Royal and Highland Societies is widely different. They have large funds at their disposal, they have large capital invested in various modes, which capital could be as safely invested in the stocking of one or more farms, under their superintendence, which would, if we judge from the profits on farming gained by all good agriculturists, return them a far larger revenue than it can invested as it now is, in the funds or in mortgage. If you say that there is a risk in losing the capital of the Society, from the bad management of such farms, I reply that, could such be the case, the Society would be unfit for directing the agriculture of this country, when, with all the information it possesses, it could not accomplish what any farmer in Britain does—pay his rent, and interest on his capital, with a handsome sum for his own maintenance, proportioned to the size of his farm and the capital invested in it. So far from not giving an income equal to that received from Consols or mortgage, I think it may safely be asserted that with the advantages possessed by our societies, they could and must farm to a greater profit than any private individual possibly could, and that it presents no greater risk of mismanagement than from the Bank, insurance companies, and the thousand and other joint stock companies which are so profitably managed by directors and committees.

But, supposing the Societies not to have sufficient funds at their disposal, why not commence a subscription for the purpose of establishing what would do more to advance the interests of agriculture in one year than all the prizes offered for cattle, seeds, &c., could do in twenty? Can it be supposed that when we see the tens and tens of thousands yearly subscribed by a liberal public for a variety of useful purposes, throughout Britain, that abundance of means would not pour into the Society's coffers instantaneously on their making such a proposal. In a private petition on the subject of experimental farms, which I last year laid before the Royal and Highland Societies, I, an humble, and comparatively poor individual, offered to subscribe £100 to either of the Societies which should first adopt my views; and when we know the large sum lately subscribed in Scotland,

under the auspices of the Highland Society, to build and collect a museum for agricultural implements, can there be any doubt on the point of sufficient funds being subscribed? Here was a large sum extracted from the proverbially poverty-stricken Scotch (to whom, in this instance, the term *canny* cannot be applied), from their strong desire to promote in any way what they hoped might be of advantage to agriculture, though, had they looked before them with their usual sagacity, they would soon have perceived how totally thrown away was the collection of rubbish and implements long pronounced useless, and how much better applied would that money have been in collecting only the very best and most approved implements, and pointing *them only* out to their agriculturists. Yet, so eager was all Scotland for the possession of anything that they hoped might in the smallest degree benefit their agriculture, that in a year or a little more the whole sum was at the Society's command. Can it, then, be doubted that for so useful a purpose as that of model and experimental farms, where our agriculturists could at once learn without difficulty, and see before their eyes the proper and most productive modes of farming, the public purse would not be readily, freely, and liberally opened? There can, I assert, be no doubt on this point, and I trust to see it carried one day, and that soon, into effect, if funds cannot otherwise be found. The only objection I know to the establishment of model farms is the fear which the few best farmers may reasonably feel that, whereas their profits are now large, from the better crops their superior information and intelligence enables them to raise, the establishment of model and experimental farms would soon so instruct our worst farmers as to put all on a par, and such a profusion of grain would be raised as would lower present prices and profits immensely, putting an end to any necessity for the introduction of foreign grain. I confess to a little feeling of this nature myself, for I gain handsomely by my farms, and know that if all farmed on a good system I should be a loser; so that if the result I foresee can be deemed disadvantageous to our country, I allow that model farms would indeed be a curse, and not a blessing. You, Mr. Editor, appear to sneer at the word "thoughtout," in our petition, but the perusal of my prospectus, now forwarded to you, will show the meaning of that word not to be so dangerous as you may suppose; the system followed in a warm climate, and on fine soil, would not be a proper regulation for the cold climates and inferior soils common elsewhere, though we poor Scotch find that few things which succeed even in the favoured climate of bonny England cannot be practised in this our adverse situation, where care and attention are found to be worth more than climate and soil. But, certainly, it would be best that several farms were taken and cultivated in the various soils and climates of different parts of Great Britain; and my prospectus will show an economical mode of attaining this, if the Royal and Highland Societies be as poor as the farmers of Wester Ross. I do not like to intrude longer on your pages and your readers; all I ask is that the subject be canvassed openly and fairly; and if there are any strong arguments against the establishment of model and experimental farms you will oblige us by stating them, and giving us an opportunity of reply, for there can be no fear as to how the discussion must end, carried on, as it I trust will be, in that good spirit which is the

distinctive mark of all true well wishers to their country.

One word as to what you say of fallows. I was misrepresented in saying that fallows can be dispensed with in all seasons, and on all soils. I alluded chiefly to the soils of Ross-shire, a gravelly loam. I allow that wet seasons, and a variety of other circumstances, may make fallows advisable in some parts of Britain; but when we see that a practice which existed extensively even on our own light soils now extinct, and know what can be done in clays by careful farming, and the adoption of means formerly unknown, I do think that fallows, in almost any soil, can in most instances be dispensed with. With much esteem for your valuable magazine,

I am, your obedient servant,

Conan, Oct. 26th.

F. A. MACKENZIE.

P. S. With regard to the report of "Whitfield Example Farm," to which you refer, I have perused it, but my stupidity is such as to prevent my seeing that its example can in any way be followed, at least not by the canny Scot; we can, I trust, suggest something more practical, as well as more profitable.

HEREFORDS v. SHORT HORNS.

SIR,—On the 25th of last month I received a letter from Mr. Bates, of Kirkleavington, near Yarm, in Yorkshire, to which, according to his request, I replied; not being then aware that Mr. Bates had sent a duplicate of his letter to me, to be inserted in your paper. As I kept no copy of my letter to Mr. Bates, I cannot follow his example in this matter; but if Mr. Bates considers it desirable, he has my full consent to make the contents of my letter public, though it is not altogether such an one as I should have written with a view to publication, being rather a communication as from one friend or brother breeder to another, than a document intended for publicity. Now, however, that I have seen the letter of Mr. Bates in print, I feel that the public is entitled to know something of what I said in reply; it was in substance as follows:—"That the bad state of my health precluded my accepting of Mr. Bates's kind offer to show me his herd of cattle, which otherwise I should have had great pleasure in viewing; but, that I should, nevertheless, feel much gratified in showing Mr. B. my own stock, should it suit his convenience to come to see them. That I had myself tried many crosses in breeding both cattle and sheep, and had witnessed the result of such trials made by others, all of which had signally failed where the object had been to obtain more *size* and *weight* by using large male animals with females of smaller dimensions: for instance, I have frequently seen the produce of a well formed Hereford bull of good quality, and a short-horned cow, very superior to the produce of the short-horned bull and the Hereford cow. I could have stated to Mr. Bates, why, on the true principles of breeding, this was certain to be the result, had I not thought such a statement likely to raise a controversy between us, which from the state of my health, I was desirous to avoid. I stated that I had formerly seen what were then considered to be the best sort of short-horns in existence, and latterly, among others, those of Lord Spencer, with whom I had the pleasure to spend a few days at Wiseton, three years ago, yet that I had never seen anything to shake my belief that Hereford cattle would pay more money for the food they consumed, than any other breed with which I was acquainted—

finishing my letter, of course, with an eulogy, (pardonable I hope in an old man) of my own particular sort. I made no allusion to my challenge, which, after Mr. Bates's declaration that "on principle" he could not accept it, I felt would be impertinent; neither did I notice what he said on the milking properties of his short-horns, nor his having often kept them solely on "wheat straw and water" through the long northern winters. I did not mention, though of course I was aware, that Mr. Bates had been an extensive and successful exhibitor of stock at the Oxford and Cambridge meetings. I now beg to inform Mr. Bates that I not only knew of his success, but that I had satisfied myself by enquiry from competent and unprejudiced judges of the merit his cattle possessed compared with others of the same kind, and also as compared with the best of other breeds.

If I had noticed and fully gone into all these important details, my letter would have been much longer than I intended, and were I to enter into them now, it would still be the case; in a future letter I may probably go more fully into these subjects. My desire has long been, and still is, to endeavour by all practicable means to ascertain which is the best description of cattle for both breeder and feeder, that is, which sort will pay the most money for the food they consume. I have repeatedly made public my willingness to find cattle to test this point with other sorts in the way I think best, viz., by keeping together, and feeding in the way usually adopted by graziers, some animals of each breed, with this proviso, that the quantity of food consumed by each sort should be as nearly as possible ascertained.

I am, Sir, your most obedient servant,

JOHN PRICE.

Poole House, Upton-on-Severn, Nov. 5, 1840.

WITHAM AGRICULTURAL MEETING.

This annual meeting of the gentry and agriculturists and labourers (a branch of the Chelmsford Society), took place on Thursday, Oct. 8. The ploughing took place in a field belonging to Mr. Thomas Beadel, about a mile on the London road. At two o'clock the prizes to deserving labourers and servants were distributed from a waggon drawn up in front of the Society's tent; in the waggon were Lord Rayleigh, W. W. Luard, Esq., J. H. Pattison, Esq., W. Walford, Esq., the Rev. J. P. Wood, and most of the other gentry of the neighbourhood.

Mr. DISNEY (the President), addressed the winners of the prizes in a very appropriate speech.

Lord RAYLEIGH then moved a vote of thanks to Mr. Disney, which that gentleman acknowledged, and the company separated.

THE DINNER.

Upwards of 60 gentlemen sat down to a dinner at the White Hart Inn.

JOHN DISNEY, Esq., the President of the Association, took the Chair, and there were present, Lord Rayleigh, C. G. Roud, Esq., M.P.; W. W. Luard, J. U. Pattison, R. Ducane, T. Butler, H. Blood, C. Douglas, R. White, F. U. Pattison, J. E. Walford, T. Luard, and H. Dixon, Esqrs.; Revs. J. P. Wood, C. Leigh, and H. Ducane; Messrs. T. Crump, (Vice-Chairman), W. Hutley, J. Beadel, H. J. Beadel, J. Hutley, J. Beadel, jun., W. Shepherd, S. Lungley, T. Beadel, &c. &c.

After the cloth had been removed, the accustomed toasts were given.

The PRESIDENT then said, they were assembled there for the purpose of promoting agriculture, and as President of the Society he could say that few persons had contributed more to that object than their two Vice-Presidents, Lord Rayleigh and Lord Western. (*Cheers.*) They had not a better neighbour, or one more sincerely attached to the interests of agriculture, than Lord Rayleigh, who was a thorough friend of this Society and all its objects. (*Cheers.*) To say of Lord Western that he was an eminent friend to agriculture, would be only to tell them that the sun shone at noon day—as a country gentleman he was a friend to those around him; and

he could not put two names together more serviceable to the county than those two noblemen. (*Cheers.*) He proposed the healths with all the honours they could give the toast. (*Drunk with cheers.*)

Lord RAYLEIGH returned thanks.

The PRESIDENT said, he would now give the healths of a body of gentlemen who were attached to the interests of Agriculture—"The Members for the County." (*Cheers.*)

Mr C. G. ROUND returned thanks.

The following statements of experiments which had been tried by Mr. Smyth Lungley, of Kelvedon, were then read by Mr. J. Beadel:—

PRODUCE PER ACRE.

BARLEY SOWN WITH VARIETIES OF MANURES, 1840.

Manure.	Quantity of Corn per acre	Straw per acre.	Cavings.	Chaff.		Price per Quarter.	
Quantity and cost per acre.	Qrs. bu.	ton.ct.lb.	Cwt. lbs.	Cwt. lbs.			
<i>Sprats.</i>					<i>One Acre—Spratted.</i>		
50 bush. per acre, at 9d. ... £1 17 6	7 1	1 10 8	1 80	2 88	..... Say 20s. per ton	30s.	f s. d. 10 13 9
Carting .. 0 10 0					..... Very little value		0 1 6
2 7 6							0 3 6
Labour .. 0 2 6							12 9 3
2 10 0					Deduct value of extra Manure ..		2 10 0
					Net produce		9 19 3
<i>Saltpetre.</i>					<i>One Acre—Saltpetre.</i>		
One cwt. per acre ... £1 9 6	6 6	1 5 7	1 34	2 60	..... Say 20s. per ton	30s.	10 2 6
Carting and Labour .. 0 4 6							1 5 0
1 14 0							0 1 0
							0 3 0
					Deduct value of Manure		11 11 6
					Net produce		1 14 0
							9 17 6
<i>Night Soil.</i>					<i>One Acre—Pottiven's Disinfected Night Soil.</i>		
20 bushels at 2s. 4d. is £2 7 6	6 4½	1 3 2	1 31	2 54	..... Say 20s per ton	30s.	9 16 10½
Carting, &c. 0 4 6							1 1 6
2 12 0							0 1 0
							0 3 0
					Deduct value of Manure		11 2 4½
					Net produce		2 12 0
							8 10 4½
<i>Yard Manure.</i>					<i>One Acre—Common Farm Yard Manure</i>		
10 loads per acre, at 5s. £2 19 0	5 6	1 2 6	1 31	2 51	Season much against the muck—land ploughed three times, and the weather set in dry	30s.	8 12 9
Labour and Carting .. 0 5 6					..... Say 20s. per ton		1 1 0
2 15 6							0 1 0
							0 3 0
					Deduct value of Manure		9 17 9
					Net produce ..		2 15 6
					It is presumed future crops will be benefited by this yard manure.		7 2 3
<i>No Manure.</i>					<i>One Acre—No Manure.</i>	at	
	5 4½	0 19 0	1 7	2 26	..... Say 20s. per ton	30s.	7 14 3
							0 19 0
							0 1 0
							0 2 6
					Net produce		8 16 9
							2 1 2

EAST RETFORD AGRICULTURAL SOCIETY.

FIRST ANNUAL MEETING.

The establishment of the East Retford Agricultural Society, and the locality to which its operations are more immediately confined, may form an excuse for offering a few observations by way of prelude to the report of this interesting meeting, which took place at Retford, and to which we direct the attention of all who take an interest in the success of agriculture, and, by consequence, in the general welfare and prosperity of the country at large.

The district to which this society extends, contains a population of at least 55,000 souls, the principal portion of which are engaged in cultivating the soil. It comprehends the whole of the Hundred of of Bassetlaw, and every parish in the counties of York, Lincoln, Derby, and Nottingham—the town or village of which is situated within fifteen miles in a direct line from East Retford; having an area of 450,000 acres, and containing such an useful diversity of soils within its limits as to render such society not only advantageous but certainly highly desirable.

The greater portions of these soils preponderate in favour of light useful sand and loam, which since the formation of the Chesterfield canal in 1777, have been brought into such a high state of cultivation as but few other neighbourhoods can boast of, and which has produced some of the finest sheep and cattle to be found in any other part of the kingdom. In proof of this assertion let us take a brief retrospect at some of the principal breeders for the last half century.

First of these stands pre-eminent the late F. F. Foljambe, Esq., of Osberton, who seeing what the district required, liberally opened his purse for the purchase of the famous bull "Foljambe," (son of the celebrated bull "Hubback") many of whose descendants are scattered up and down the country, still remaining as monuments of the skill and judgment manifested by this kind-hearted and much revered gentleman, who earned for himself a fame not to be forgotten either in Nottinghamshire or the adjoining counties. Contemporary with Mr. Foljambe was the late Mr. Turnell, of Ranby, whose stock, usually denominated the "Reasby breed," have conferred immense benefits on various parts of the country. This breed, however, is said not to be the pure short horn, although they are the descendants of Hubback; they sprang from a cow whose breed certainly was questionable, but whose worth was inestimable. Many of this breed are to be found in almost every county in England, and highly favoured must be he who possesses such a valuable acquisition to his herd. Next to these in point of years stand the Hon. John Bridgeman Simpson, of Balworth, who, from the celebrated bull "Lancaster," (purchased at the sale of the late Mr. Collins for 620 guineas) and some heifers from the same stock (one of which cost 190 guineas), has produced a breed worthy of this or any other age or country. Next in point of time rose the late celebrated C. Champion, Esq., of Blyth, who produced some of the most valuable stock that ever was, or perhaps ever will be raised; as witness the immense prices which many of his cattle produced on various occasions; and even at the last (previous to his declining breeding altogether), and when some of his prime stock had already been disposed of, the short horns sold at his sale fetched the large sum of 7000 guineas. Proceed we next to notice Earl Spencer, of Wiseton. This distinguished nobleman

has for a series of years occupied one of the highest situations in the country as a breeder of short horns. The assiduity with which he has followed it up, and the great care and judgment displayed by his lordship in the selection and management of his stock, has earned for him a fame and a character known nearly throughout the civilized world. Not only on the continent of Europe, but in America, in Australia, and various other parts of the globe, his lordship's produce are to be found, conferring alike an honour upon their highly esteemed breeder, and a benefit upon those distant lands, where they are destined to produce results which the present generation cannot fully appreciate, but of which after ages will reap a benefit not now even to be calculated upon. Nor ought we to forget John Parkinson, Esq., of Leyfields, who stands second to but very few in this important branch of our domestic economy. The very high prices which his stock has invariably realized, and the eagerness with which it has been sought after in every part of the kingdom, all tend to prove that his judgment is of a very superior order, and those of his produce of the most sterling kind. To George Clarke, Esq., of Barnby Moor, and Mr. Allison, of Bilby, the public are considerably indebted for the great encouragement which for years they gave to this important subject; latterly both have declined the breeding of short horns. Next to them we may mention Mr. William Bower, of Moorgate House, who has for many years produced some excellent cattle, which has frequently obtained purchasers at good prices. There are several others in the district of minor importance, in this respect, but which our limits at present prevent us from noticing. Those whose names we have mentioned are all residing within a few miles of Retford.

We secondly proceed to notice our past and present resident sheepbreeders and their produce; and here we build on a sure foundation—one, too, which can neither be shaken, nor its present superstructure outvalled. For the last sixty years the Hundred of Bassetlaw has been the great nursery for prize sheep, whence have issued some of the very best which England has produced. This climax, however, has not been attained without an immense deal of trouble,—a great outlay of capital and the exercise of superior skill and judgment in the selection of such rams, and the adoption of such ewes, whose produce was likely to be suited to the district in which they were destined to locate. For this purpose Leicestershire was scoured from end to end, whilst the length and breadth of the East Riding of Yorkshire was ransacked, and the best sheep were imported into Nottinghamshire which favour could accomplish, or money procure. During this period it was no uncommon thing for 100 guineas to be given as the price of a ram for the "season;" whilst ewes were purchased at a cost of seven times their intrinsic value. Perhaps one of the first persons who took the lead in this laudable but somewhat hazardous speculation, was the late Mr. Scott, of Torworth, whose flock about thirty years ago surpassed most others in the kingdom. The immense sacrifices which he made were, at that time, considered by many to be far greater than the profits which he was ever likely to realize; but he kept on "the even tenor of his way," and his successors have found their advantage in their predecessor's immense outlay. Nor ought we to omit again mentioning the name of the late Charles Champion, Esq., of Blyth, whose ardour in the cause of improving the breed of sheep was scarcely excelled by his well known predilection in favour of obtaining the very best of cattle. His memory will long live, and be cherished by all those agriculturists in

the district with whom he was so long and so honourably connected; and for whom, and their descendants, he so long toiled to improve, and to further the interests of this most important branch of British enterprise. Next upon the list we shall notice is Richard Hodgkinson, Esq., of Morton Grange. For the last forty years this gentleman's best attention has been devoted towards bringing his breed of sheep to the greatest perfection. In this great and important undertaking he has been very materially assisted by his extensive connexion with many of the most eminent breeders throughout the country; and neither pains nor expense have been spared towards consummating this—the great and principal object of his ambition. The late William Hodgkinson, Esq., of Torworth, also well deserves to be had in remembrance. His exertions were unremitting—his expenses immense, still he was not to be deterred; and we believe we may add that one of the proudest days of his life was in 1839, when the silver cup was awarded to him at the Blyth show for his splendid pen of twenty clipped wethers. Nor ought we to omit to mention his son-in-law, Mr. Allison, of Bilby, whose flock perhaps surpasses most others in the district at the present period. His pen of twenty clipped wethers exhibited at the last Blyth show, and which obtained the prize, were allowed by competent judges, from various parts of the kingdom, to be the very best ever exhibited in any part of the globe. George Clarke, Esq., of Barnby Moor, John Bradley, Esq., of Blyth, Mr. Inett, of Barnby Moor, Mr. John Clarke, of Mathersea Hill, Mr. Thos. Walker, Dane's Hill, Mr. Neale, of Scrooby, and several others, are names familiar to most of our readers, whose superior breed of sheep are not to be excelled in any other county or district. In proof of this assertion we have only to call to our recollection that several of those gentlemen we have just named, actually challenged all England to produce a similar number of sheep to be exhibited against theirs at the late Blyth fair for the sum of 1000 guineas, but from that period, although nibbled at, has not been accepted. With a district therefore so well furnished with men and materials for forming an agricultural society, we cannot doubt that the one whose proceedings we are about to record, will flourish for many years to come. It is true that "little Ollerton" has set up for itself; and Blyth and its circumjacent district form an independent association of its own, under the fostering care and splendid munificence of John Bradley, Esq. The Retford society, however, aims not at rivalry, nor envies the exertions of others in the same laudable undertaking. It is her design to "live and let live," and under its present auspices we cannot doubt that its ultimate success is certain.—*Doncaster Gazette*.

ON DRAINING MOSSY LANDS.

SIR,—I would ask your numerous readers who may have had experience in the draining, &c., of low mossy lands, what is the best method to be adopted where the bottom is rotten, and where shells would sink and become useless? Some land of this description is lately come into my possession, and I am at a loss to know the best course to be taken in such a case. Manure it is well known is almost thrown away upon land in such a condition. Is there any general rule whereby to discover the head of the spring? whether the land in such places is somewhat higher? Any of your experienced readers who may give a word of advice, will confer a favour upon a constant reader and

A CHESHIRE FARMER.

October 24th, 1840.

INTRODUCTION OF MERINOS INTO SCOTLAND.

The introduction of merinos into Scotland direct from the continent forms, we believe, a new fact in the husbandry of this country. This has been accomplished by Mr. Graham, of Kincaldrum, in the county of Forfar. As the fact itself is new, it deserves a little attention from us. About six years ago, Mr. Graham caused a friend of his in Braunsburg, in East Prussia, to send him some Saxon sheep. These had been exhibited at a great show which annually takes place in that country, and at which the ewes purchased for him had obtained the highest prize. To give some idea of the price these sheep cost Mr. Graham, we have only to mention the fact, that a brother of Mr. Graham's rams was sold in Prussia three years ago for the sum of 1000 rixthalers, equal to 143*l.* sterling. On their importation into this country, the sheep were kept on the lawn around Kincaldrum house throughout the year, with the assistance of a few turnips and straw in winter, and a covered cot into which they could retire at night and in bad weather. Mr. Graham bred from them for a few years, but found them too delicate in the constitution for the climate, from the want of the proper warmth and shelter they had been accustomed to abroad in winter. He then thought of crossing them with other sheep, putting the Leicester tup to the pure Merino ewe, and the pure ram to the Cheviot ewe; and the experiments have succeeded remarkably well. The crosses are quite as hardy as the native breeds of sheep, requiring no other attention, and bearing to be soiled in winter on turnips in the field. The produce of both crosses have grown and thriven well, promising to be well formed and weighty sheep, but, as it was only last year that Mr. Graham began the crossing, and the sheep have not yet had time to attain to their full growth, it is as yet impossible to say to what weight their carcasses may ultimately attain. With regard to the wool, which is now-a-days an important particular in the breeding of sheep, the quality of that of the pure Merino is very fine, for, although it is an admitted fact that its quality does deteriorate a little in this climate, still it is far finer than that of any of the native breeds. Three years ago, Mr. Graham's fleeces fetched 3*s.* 6*d.* per lb. in Edinburgh, and the average clip was fully 4*lbs.* per carcass. The cross-wool is of course not so fine, but still very fine, and of a different texture, and far superior to any produced in this country. The fleeces of these weigh fully 5*lbs.* each, and in order to let sheep-breeders themselves judge of its quality, Mr. Graham, we understand, intends to exhibit his wool at the Highland and Agricultural Society's show at Aberdeen next October. As we believe that Mr. Graham has a few pure rams to spare, as well as a few cross ewes and tups, it may be worth while, now that the opportunity is within their reach, for some of our sheep-breeders to try a cross with the pure Merino ram and the Leicester, Southdown, and Cheviot ewes, with the view of improving the quality of the wool, and at the same time seeing whether the symmetry and weight of the carcass cannot be maintained. The experiment of maintaining the carcass of the native breeds with the Merino cross, was tried long ago, from 1788 to 1804, by his late Majesty George III., and did not then very well succeed, but we conceive that many circumstances then operated to frustrate the object of those experiments, as well as those of a later date made by the Merino Society of 1811. Among other disturbing influence,

may be mentioned the then recent introduction of an unknown race of animals—the general ignorance of the principles and practice of breeding sheep then, compared with the extended knowledge of these essential particulars in the present day—and the peculiar circumstances under which a royal flock was likely to be attended to. But these objections do not hold good now, and so far as the nature of the breeds themselves is concerned, there seems nothing to prevent the carcass of the Merino to be improved as well as that of any other breed. Indeed, so far from that, the late experiments of Lord Western rather hold out a strong encouragement to breeders to try the experiment. Lord Western has challenged all England to produce superior sheep to his Anglo-Merino in symmetry and fat. We had an opportunity of seeing some of them at the Oxford show of the English Agricultural Society last year, and must say that prettier sheep were not exhibited on the ground, nor any that proved fatter both inside and out, or died better as the phrase has it, on being slaughtered. The remarkable feature of these creatures was their carrying their fleeces for three years, during which, it seems the fleeces acquire a much greater proportion of the weight of 38lbs. in the latter years than in the first year of that period. This interesting fact, now that it has been ascertained by experiment, is indicative of the possibility of uniting a fat carcass with a fine fleece—an union, the possibility of which, has long been denied by sheep-breeders in England. We do not profess to explain the reason why Lord Western's sheep retain their fleeces in an unbroken state for more than one year. We shall feel obliged to any of our correspondents who can give us a satisfactory explanation of the circumstances, to do it. Perhaps the practice of keeping the sheep constantly in the house may have some effect in producing the result, and if so, then we may expect that our other breeds might be made to produce the same effect, now that the practice of housing, in winter especially, is gaining ground in England. Altogether, we conceive that experiments in crossing and housing the different breeds of our sheep, may bring out highly interesting results, as well in regard to the symmetry of the carcass, as the quality of the wool and the properties of the fleeces.—*Quarterly Journal of Agriculture.*

STEAM PLOUGH.—On Saturday last, a trial was made in one of the fields on the estate of Pessil, near Glasgow, of the steam-plough, intended for the cultivation of the sugar lands of British Guiana. This trial was completely successful, and gave great satisfaction to the numerous party who witnessed it (among whom we observed Colonel Campbell, of Pessil). The field was laid out similar to those in the colony, which have canals on each side, running parallel with one another. The machinery consists of two iron boats, one containing a small high-pressure steam-engine, with a drum, round which the endless chain or rope is coiled, and the other a reversing pulley, by means of which the chain or rope is extended, and allowed to work whichever way is required; the ploughs are attached to this chain, and made to work backwards and forwards with great rapidity and accuracy. Mr. MacRae, whose long residence in the colony, and great practical experience of the working of sugar estates, had directed his attention, for a considerable time past, to the great and absolute necessity of employing some other power to supersede cultivation by manual labour, invented the steam-plough, which was executed by those enterprising engineers, Messrs. Thomas Edington and Sons, Phoenix Iron-works, whose great ingenuity in constructing and designing the various parts was very much admired:—*Glasgow Courier.*—April 21.

THE EPIDEMIC AMONGST CATTLE.

The pecuniary loss sustained by farmers, whose cattle have been attacked by the epidemic, which has for some time past prevailed, renders no apology necessary for occupying the most prominent part of our paper with some observations respecting it. The disease is still extending, and seems to be going northward, it has already reached Berwick-upon-Tweed, and will doubtless speedily progress into Scotland. It prevails at this moment to a very considerable extent in the county of Sussex, and the *Brighton Gazette* has the following observations upon the subject:—

"We regret to hear that a disease among the cattle, sheep, and pigs, is still very prevalent in Sussex. A few days ago, three fat hogs of Mr. Tucker, at Offham, were attacked by the complaint, and two of them died. The cattle and sheep are seized with weakness in the legs, and they roll and tumble about as if intoxicated, and numbers may be seen feeding whilst lying down. Mr. Tucker's hogs are the only instance we have heard of, in which the disease has proved fatal. The malady has a serious effect upon the stock markets. Butchers appear afraid to purchase; and the breeders are, of course, desirous of disposing of their stock. The disease, which appears to be very infectious, is productive of great inconvenience to breeders and purchasers, and it has baffled the skill and experience of veterinary surgeons."

We are perfectly satisfied that the *Brighton Gazette* would not designedly give publicity to any erroneous statement, more especially when tending to produce mischievous results, and which the paragraph given above is most unquestionably calculated to do. That Mr. Tucker's pigs died we entertain no doubt, nor do we less doubt that if timely assistance had been rendered they would have recovered. The disease is fatal in but very few cases, mainly those in which the constitution of the animal was in a bad state before the attack, or where the grossest negligence in treatment has been committed. That "breeders should be desirous of disposing of their stock" would be a most mistaken policy, and that "the disease has baffled the skill and experience of veterinary surgeons" is incorrect. That graziers should be anxious to sell their fat cattle, ready for market, is not surprising, inasmuch as an attack of the disease causes the animals to lose flesh, and consequently deteriorates their value, or renders them unmarketable without a further outlay for feeding; but that breeders should seriously entertain the idea of selling their cattle from apprehensions of their being attacked, is, as it seems to us, perfectly absurd. That the statement of the disease having "baffled the skill and experience of veterinary surgeons," is incorrect, not only appears by the reports of veterinary surgeons themselves, in different parts of the country, but also by the success which has almost invariably attended the application of the remedies prescribed by Professor Sewell, and published a long time since by the Royal Agricultural Society of England, and republished by us a second time two weeks since. Veterinary surgeons can no more *prevent* the attack of *this*, than of *any other* disease; but that they can cure it, and that the remedy is

simple, is shewn by the document to which we have above referred.

It cannot be too forcibly impressed upon the minds of all persons whose cattle have not been attacked, that the utmost watchfulness should be used with a view to discover the first symptom, when advice should be called in, or, if not at hand, the remedy which has now been so universally applied and as universally found successful, should be instantly resorted to. The waiting to see if the animal will get better, gives time for the disease to take stronger hold, and if productive of no other more serious consequence, renders the cure more protracted. When taken in the first stage the cure is simple and speedy, and the disease produces little effect on the animal; if permitted to advance to the second stage, the consequences are much more injurious. In the number of "*The Veterinarian*" published this day, there are several interesting communications on the subject, one of the most interesting is an essay by Dr. Gilmiester, veterinary surgeon to Prince Thun and Taxis, at Regensburg, in Bavaria, upon the character of the disease as it appeared in Mecklenburgh, in the year 1839, and which was read in English by Mr. Erne, at the meeting of the Veterinary Medical Association, on the 26th May last. The disease, it appears, prevailed in Hungary and Lower Austria, in 1834, spread rapidly to Bohemia, Saxony, and Prussia, afterwards to Mecklenburgh, entering the country at south and west, and proceeding to the north and east, and not only invaded the whole country, but spread through Germany, Holland, and France. Dr. Gilmiester considers the disease of the mouth and of the foot to be the same: in his experience they have not attacked the animal at the same time, but generally follow each other at a short interval of time. The disease of the foot was by far the most malignant, and fatal. This malady may be communicated by inoculation, and has been taken by human beings. The communications of Mr. Charles Dickens, of Kimbolton, and of Mr. Lepper of Aylesbury, are exceedingly interesting, and contain much valuable and practical matter, which may be perused with advantage by the farmer. We shall close these remarks by again enjoining continued vigilance to the appearance of animals which have not been affected with the disease, so that the shortest possible space of time be permitted to elapse between the appearance of the first symptom, and the application of the remedy, the malignity of the disease, and the difficulty of cure increasing very rapidly by delay.

FARMERS' CLUBS.—In support of our opinion last week, as regards the value of these institutions, we extract the following observations from the Ratland Club, advertised in our 2d page. First, that after the general accounts had been gone through, it was unanimously resolved, that an exhibition of seeds, roots, implements &c., should take place next autumn. That 25*l*. should be applied (from the annual subscription fund) to the purchase of standard agricultural works for the library; and that at the next monthly meeting (on the 16th Nov.) the present prevailing epidemic should be again discussed. The above analysis must clearly show to the practical agriculturist the important results that must emanate from such institutions.—*Lincolnshire Chronicle*.

ON LAYING DOWN PERMANENT PASTURES.

SIR,—I feel extremely obliged to you for procuring the information I sought, respecting "Soiling," and if you would further oblige me by inserting this letter in your next magazine, I have no doubt some useful correspondent would give me information upon another subject, I mean the advantage of laying down permanent pasture, without taking a white crop.

Sinclair recommends it I know, but were profit and loss great objects of consideration with him?

I have lately received the annexed letter, showing the great advantages of soiling, as well as the value of Italian rye-grass, having myself witnessed the luxuriant crops the writer grows of that very valuable grass, I can bear testimony to the statement made in his letter.

I am, your obedient servant,
TYRO.

SIR,—My plot of ground being only 1½ acre of light, loomy soil, not of the richer sort, but rendered pretty fertile by attentively manuring it—and I need not tell you, Sir, that this would not be more than sufficient to graze one cow during the six summer months—in this case, as well as in many others, necessity was made the parent of invention; desiring that the produce in some way should be rendered to go as far as possible, I resorted to that invaluable plan of feeding within doors with cut grass from the ground, which has now been my practice for years back; but now having to do with this year, I shall say that on the 27th April last, my second year crop of Italian rye-grass was knee high when I began cutting it to my horses and two cows; in June I sold one cow to a butcher in good condition, which was replaced in about a fortnight by a pony, which three has been kept entirely upon this produce until now, and I am often told by my man, "unless you get another cow you cannot use all this grass," and from its present appearance, I am led to suppose it will last until December.

I would also say, that at the latter end of June, when about 4 feet high, and the seed ripe, I cut three-quarters of an acre, which was thrashed, and produced 30 measure of seed, part of which I have sold at 12*s*. the measure of 38 quarts; the hay after it has been thrashed is almost the only food my horses subsisted on since then, having perhaps occasionally a handful of the green, and their high condition, although working, is not exceeded by any other in the place, thus shewing the value of the Italian rye-grass, even as hay as well as green food.

The only drawback that can be urged against this plan, is the labour of cutting and carrying the grass, this I consider is amply repaid by the produce of manure it affords.

I proceed to calculate the profit at the lowest rates charged here, which is not for cows under 5*s*. per week, and horses more, and although this will keep them seven months, I will call it only six.

3 heads for 26 weeks, at 5*s*. each .. £19 10 0
30 measures of seed, say at 10*s*.

(although selling at 12*s*.)..... 15 0 0

34 10 0

Deduct its worth as pasture..... 6 10 0

Net profit.... 28 0 0

Thus affording 420 per cent. on the old plan.

ON THE DRAUGHT OF PLOUGHS.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—A number of articles have of late appeared in your periodical on ploughs and their respective draughts. The subject is one of great importance, as it is closely connected with economy of management, and a saving in the expense of cultivation is equivalent to an increase of production.

It is, however, unfortunate that in our enquiries as to the comparative excellence of the great variety of modern ploughs, there is too little reference to *antecedent* experiment; and as a case in point, I would particularly instance the trials instituted to ascertain the merits of the Beverstone, of Arbutnot's, and within the last few years of Finlayson's and Wilkie's. Although it is a question whether, on certain points, we have made any *very* marked improvements on the two first of these implements, always excepting, of course, the successful introduction of the *friction wheel* by Wilkie, and perhaps the invention of the *skeleton body* by Finlayson, for the first furrow on the strongest clays; yet the Beverstone and Arbutnot's plough are almost forgotten, Finlayson's and Wilkie's known only to few.

It would appear that in many instances present inquiry is to a great extent but a revival of the past, and that, upon the whole, we are not making less positive advances than at first sight we should imagine. Notwithstanding all that has been written, we are still undecided as to whether wheel or swing ploughs are easiest of draught, and as to their comparative value in other respects, we still require a series of experiments to determine the proper *point of attachment of draught*, whether to the point of the beam, to the axle of the wheels, or from the body of the implement, and lastly, the G. O. system of double horses is still under comparison with the line method of attaching the moving power. All these have been open questions more than half a century.

It were to be wished, therefore, that some influential person or society would take the matter up, and, by rendering our knowledge on the subject as precisely accurate as careful investigation could make it, confer a lasting benefit on the agricultural public. In the meanwhile, we may welcome the appearance of the "Experiments of P. Pusey, Esq., M.P.," as being the most satisfactory, and, upon the whole, the most conclusive of modern times,—the most curious, too, subversive as they are of some of our most favourite theories. Elaborate, however, as they are, and decisive as they would appear to most on the particular question of the general practicability of the two horse system, yet, on this one point, the trial on tenacious clay was not so complete as might be desired. There is a plough, Finlayson's skeleton plough, the existence of which is apparently unknown, and yet the very implement invented for the circumstances in question. Had, therefore, Mr. Pusey tried the skeleton against the other ploughs, the result would have been most satisfactory; until that is done we are still unable to decide whether the Scotch system is universally applicable or not, and especially in the difficult circumstances in which of these trials it failed.

If, therefore, some society or patriotic individual competent—and no one is more so than is Mr. Pusey, to solve the problem of "wheel or swing ploughs, of the plough of absolutely the lightest

draught, and of the possibility of the introduction of the G. O. system on strong land—"if some such person as Mr. P. would undertake to conduct the experiment, I would venture to submit that the comparative trial of three forms of plough hitherto but little noticed would most probably satisfactorily determine the points at issue.

The forms I would recommend are—

1. Wilkie's friction wheel plough.
2. Finlayson's skeleton plough.
3. The best Scotch plough, with the Beverstone wheel apparatus.

The recommendation of the third form may appear singular, inasmuch as there is no such plough in existence; the addition, however, of the singularly scientific wheel system of the Beverstone to an iron Scotch plough might readily and cheaply be made, and would, I am persuaded, constitute a wheel plough superior, perhaps, to any in the world.

The comparison of this wheel plough with Wilkie's (No. 1), *the best swing plough*, of which I have any knowledge, would go far to decide the question of the comparative value of wheel or swing ploughs; and, again, the trial of Finlayson's skeleton plough (No. 2) upon clay lands would determine the *possibility* of the two horse system on soils on which it has hitherto been deemed impracticable. These three forms would, in fact, embrace every variety of soil and circumstance; and experiments carefully conducted would ascertain all we can reasonably expect to accomplish.

October.

J. N.

Note.—For plate and description of the Beverstone plough itself, see *Annals of Agriculture*, vol. 33, page 192.

ON SUBSOIL-PLOUGHING.

TO J. WEST, ESQ., COLLINGHAM.

SIR,—Allow me to thank you most respectfully for your polite communication respecting the subsoil plough, noticed in this month's *Farmer's Magazine*, by that eminently practical farmer, Mr. J. Wright, of Collingham. Knowing both from private and public sources, that *you also* have paid great attention, and are highly interested in the subject of subsoil-ploughing, I feel satisfied you would confer weighty obligations on farmers in the principality of Wales, if your valuable time would permit, by forwarding further information upon "*the soils best adapted to the operation of the subsoil plough, and also the kind of plough, most easily and advantageously worked, in the principality,*" should your knowledge extend so far.

In Mr. Wright's letter, headed *Important to Farmers*, he states that the method adopted by him was most effectual for the destruction of that annoying little animal the WIRE-WORM. Mr. W. does not state whether this plough can be worked by *two horses*, or not, he says that he procured his plough from a Mr. Smith, a Scotchman. Now I believe Mr. Smith's subsoil plough cannot be worked with less than four or even six horses. I do not mean to doubt for a moment, but an ample equivalent would be derived from the employment of such a team, even in the destruction of the wire-worm, but my enquiry is, and I know your extensive experience both in England and Scotland will be highly satisfactory towards answering this enquiry, is this plough mentioned by Mr. Wright as Mr. Smith's subsoil plough, or

is *Mr. Murray's plough* BEST adapted to lands in the principality of Wales, generally, and the county of Denbigh in particular, and if either of them is so constructed that two powerful horses can work them effectually?

The result of your experience, through the medium of that extensively circulated journal, the *Mark Lane Express*, if the Editor will be so obliging as to insert this letter, and your communication in answer to it, will be very much esteemed and obliged.

Sir, your most obedient servant,

R. ELLIS.

Ruthin, North Wales, Oct. 1840.

DARLINGTON AGRICULTURAL ASSOCIATION.

The third meeting was held last month, which drew together great numbers of influential farmers and others from the neighbourhood. The display of stock of all kinds was excellent, the cows and sheep of the first rate quality. There was an heifer, two years and a half old, belonging to Lord Zetland, which was much admired for its size and symmetry. This has been the best meeting ever held. The following were the premiums awarded:—

CATTLE.

For the best bull, one year old, and not exceeding four, 20 sovereigns, to Mr. S. Deighton, of Winstone. For the second best bull, 5 sovereigns, to Mr. Maynard, Snow Hill, six competitors.

For the best cow in calf, or that has produced a calf since the first of January last, 5 sovereigns, to Mr. J. Booth, Killerby, nine competitors.

For the best two year old heifer, in calf or milk, 5 sovereigns, to Earl of Zetland, six competitors.

For the best yearling heifer, 3 sovereigns, added to a sweepstakes of 10s. each, to Mr. T. Sowerby, Newton, six competitors.

SHEEP.

For the best tup, 3 sovereigns, added to a sweepstakes of 10s. each, to Mr. Robert Watson, Hilton, four competitors.

For the best shearing tup, 3 sovereigns, added to a sweepstakes of 10s. each, to Mr. T. Allison, Fowberry, three competitors.

For the best tup lamb, 1 sovereign, added to a sweepstakes of 10s. each, to Mr. Hartley, Middleton-lodge, three competitors.

For the best pen of five ewes, that have brought up lambs in the present year, 3 sovereigns, to Mr. C. Watson, three competitors.

For the best pen of five gimmers, 3 sovereigns, to Mr. C. Watson, three competitors.

PIGS.

For the best boar, 2 sovereigns, added to a sweepstakes of 5s. each, to Mr. R. Kitchin, Darlington.

For the best sow in pig, or produced a litter within four months previous to the day of showing, 2 sovereigns, to Mr. Cundale, Otley Field.

For the best fat pig the property of a cottager, 1 sovereign, to Mr. C. Brotherton, Darlington, eight competitors.

For the best fat pig, 1 sovereign, to be added to a sweepstakes of 5s. each, to Mr. J. Simpson, Darlington, three competitors.

HORSES.

For the best mare in foal for hunters, 5 sovereigns, to Mr. T. Sowerby, sen., nine competitors.

For the best mare in foal for breeding saddle horses for the road, 5 sovereigns, to Mr. B. Harrison, Newbiggin, ten competitors.

For the best mare in foal for breeding carriage horses, 5 sovereigns, to Mr. Jacques, St. Trinians, eleven competitors.

For the best mare in foal for breeding draught horses, 3 sovereigns, to Mr. Wilkinson, Hurworth, six competitors.

For the best two year old filly for breeding carriage horses, 2 sovereigns, added to a sweepstakes of 10s. each, to Mr. Wood, Croft, four competitors.

For the best three year old colt for saddle, two sovereigns, added to a sweepstakes of 10s. each, to Mr. Dunn, Stockburn, four competitors.

For the best three year old colt for harness, 2 sovereigns, added to a sweepstakes of 10s. each, to Mr. Maynard, Snow-Hall, six competitors.

One sovereign added to a sweepstakes of 10s. each, for the best two year old colt, for saddle, to Mr. J. Richmond, Sadberge, six competitors.

One sovereign added to a sweepstakes of 10s. each, for the best two year old colt for harness, to Mr. J. Richmond, Sadberge, three competitors.

One sovereign added to a sweepstakes of 10s. each, for the best yearling colt for saddle, to Mr. Maynard, Snow-Hall, two competitors.

One sovereign added to a sweepstakes of 10s. each, for the best yearling colt for harness, to Mr. J. Emerson, Eryholme.

One sovereign, added to a sweepstakes of 10s. each, for the best foals, colts and fillies, by a blood horse, to Mr. Jacques, St. Trinians, fourteen competitors.

One sovereign added to a sweepstakes of 10s. each, for the best foals, colts and fillies, by a coach horse, to Mr. Smith, Summerhouse, two competitors.

WOOL.

For the best five fleeces of wool, two sovereigns, to Mr. Wheatley, Forth Moor, three competitors.

EXTRA STOCK.

The following premiums were given for extra stock, according to their merit, at the discretion of the judges.

Earl of Zetland, Aske, five shearling wethers, 10s.

Earl of Zetland, Aske, steer, 20s.

Mr. Thornton, Stapleton, four cows, 20s.

Mr. Thornton, Stapleton, six heifers, 10s.

Mr. W. Allan, Grange, four saddle horses, four years old, bred by owner, 10s.

Mr. Lawson, Stapleton, six cows, 20s.

Mr. Lawson, Stapleton, bull calf, 20s.

Mr. P. Toulmin, Darlington, heifer calf, 10s.

The dinner was afterwards held at Mr. Brodie's, the King's Head. Upwards of 90 gentlemen sat down to dine, John Allan, Esq., presided, and Donald M'Lean, Esq., the talented member for Oxford, residing at Witton Castle, was vice-chairman, Allan and Henry Pascoe Smith, Esqs., were also of the party. The usual toasts were given from the chair and acknowledged by several of the gentlemen present. Joseph Pease, Esq., M.P., for South Durham, responded to the healths of the members for South Durham, and stated that he had received a letter from Mr. Bowes, expressive of his regret at not being able to be present. T. C. Granger, Esq., in able terms, acknowledged the health of the gentlemen of the bar. Mr. Booth, of Killerby, responded to that of the successful competitors, and Mr. Walton on behalf of the unsuccessful ones. Mr. Walton appropriately remarked that a failure amidst so much that was so vastly superior, was no very great dis-

paragement to those who had not been successful on this occasion. *Fras. Mewburn, Esq.*, acknowledged the toast which was given respecting the trade and town of Darlington, and in eloquent terms contrasted the town with what it was when he first knew it, and what it had arrived to in the present day. The greatest unanimity and good feeling prevailed. The worthy host had done his part well, and the goodness of the cheer, the exhilarating character of the speeches, and the interesting nature of the subject which had brought them together, rendered the scene animating and imposing.

Donald McLean, Esq., occupied the chair, after it had been vacated by Mr. Allan, and in the course of the evening made some appropriate remarks on the monetary system, and on the beneficial tendency of landlords stimulating their tenants on in the pursuit of agriculture, which would eventually benefit the country at large. This was the best meeting decidedly which has been held.

The judges were Messrs. Buston, Severs, and Alderson.

ON LUCERNE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

I beg leave, through the medium of your journal to ask your numerous readers, who may experimentally understand the manner of cultivating Lucerne.

When is the proper time to sow it? and what sort of land is best suited to it? and the price of the seed? Has it been proved to be superior to vetches as food for horses? I am informed that three successive crops may be obtained, but am doubtful whether it would not cut out light, and be too succulent or sappy to be considered good horse food. If any kind reader would satisfy me on these points, I shall feel glad. I am highly pleased to see the numerous questions asked almost every week, so promptly and kindly answered by our better experienced tillers of the soil.—And am yours, respectfully,
W. S.

SIR,—Having been a successful grower of lucerne for some years, I beg to offer a few remarks for the information of a correspondent, under the signature of W. S., in your last week's Express.

The soil best adapted for the growth of lucerne is a good deep loam, having a substratum of open rock, or, as it is sometimes termed, "ratchel." It is important that the soil should be dry, and neither too light nor too tenacious, for it is never, that I am aware of, found to succeed upon light sand or strong clay lands. It is hardly possible to have the land in too high condition for this plant; and it is impossible to cultivate it to advantage without the greatest attention is paid to keeping it clean in all its stages. On this account, it should always be sown upon a naked fallow, because if sown with a crop of corn, there is no chance of weeding until the corn is removed, which has often proved too late, and it never grows freely under the shade of any other plant.

The best time for drilling the seed is the latter end of April or early in May, at the rate of twenty pounds per acre, in rows not less than twelve, or more than fifteen inches asunder.

Some persons consider this a very unnecessary quantity of seed, and that the rows are too near

each other; but I have found by experience that both my statements are right. The newly imported seed is the safest to purchase, as it is of course of great importance to have it as fresh as possible; and the price is generally about one shilling a pound in this neighbourhood. When the land is in a fit state both as regards *cleanliness and condition* (and it is useless to attempt the successful cultivation of lucerne without perfection in both) the seed may be most conveniently put in with the simple hand turnip drill, (commonly called the barrow drill) having one man to pull and another to guide it, but in order to get in a sufficient quantity it will be necessary to return upon the row, so as to sow it twice over.

As the seed should not be buried more than two inches, and covered lightly, I have found that a man with a common hay rake has done this very effectually and expeditiously by raking across the drilled rows as soon as they were finished.

The plant will rise high enough to be mown once in the first year, but for many subsequent years *three*, and in some situations *four heavy full-grown crops* will be obtained.

To insure this extraordinary produce, great cleanliness and good condition are the essentials.

Two or three careful weedings at the least will be necessary during each summer, as the crop is removed, and a liberal dressing of some sort of manure will be requisite every winter. I have found rape-dust, sown upon the land after the rate of nearly half a ton an acre, the most successful tillage; though very good results have followed the application of a good dressing of *well-rotted manure* in which linseed cake has been consumed. It must, however, be noted that the *quantity* of manure to be applied must necessarily depend upon the *quality* of the soil.

Horses are particularly partial to lucerne, and it agrees well with them; in fact, it appears to be better suited for them than any other description of stock, though I have found it highly beneficial when given to milch cows in the yard, during very hot weather, and particularly as by so doing it secures them from the almost maddening attacks of the *gad-fly* when in the pastures.

I shall have pleasure in rendering any further information in my power that may be required,

And remain, Sir, your obedient servant,
South Yorkshire, Oct. 28th.

J. H.

EMBLEMATIC PROPERTIES OF FLOWERS.

—The fair lily is an image of holy innocence; the purpled rose a figure of heartfelt love; faith is represented to us in the blue passion-flower; hope beams forth from the evergreen; peace from the olive branch; immortality from the immortelle; the cares of life are represented by the rosemary; the victory of the spirit by the palm; modesty by the blue fragrant violet; compassion by the peony; friendship by the ivy; tenderness by the myrtle; affectionate reminiscence by the forget-me-not; German honesty and fidelity by the oak-leaf; unassumingness by the corn-flower (the cyane); and the auriculars, "how friendly they look upon us with their child-like eyes." Even the dispositions of the human soul are expressed by flowers. Thus, silent grief is portrayed by the weeping willow; sadness by the angelica; shuddering by the aspen; melancholy by the cypress; desire of meeting again by the starwort; the night-smelling rocket is a figure of life, as it stands on the frontiers between light and darkness. Thus, nature, by these flowers, seems to betoken her loving sympathy with us; and whom hath she not often more consoled than heartless and voiceless men were able to do!—*Dublin Review.*

HYDROSULPHATE OF LIME AS MANURE.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Will you permit me, through the medium of your extensively circulated Journal, to ask Dr. Madden, of Penicuik—to whom the *Highland Society* awarded the premium of twenty sovereigns—a question relative to the hydrosulphate of lime, or, as he calls it, sulphuret of calcine. In his account of the turnip plant, he mentions “that considerable stress of late has been put upon the existence of these peculiar saline compounds which occur in some crops, and it has been asserted, with very great plausibility, that they are quite essential to the growth of the plant, and that their absence is fatal to the success of the crop.” consequently, if this statement is *strictly true*, the most important requisite for a MANURE for TURNIPS is its containing a supply of the *hydrosulphate of lime*. Dr. Madden, I have no doubt, is aware of the fact, that England, Scotland, and Wales abound with manufacturers of soda water; you will immediately ask what has soda water to do with hydrosulphate of lime; that brings the question I am about to ask. In the making of soda water, an immense quantity of whiting or chalk is used; it is put into large leaden gasometers or jars, and well mixed to the consistency of *thick cream* with water; when that is done, diluted sulphuric acid is poured gradually on the mixture, until the whole of the carbonic acid gas is disengaged? The sulphuric acid having a greater affinity for the chalk, a considerable effervescence takes place, which disengages the whole of the fixed air, and leaves the mixture in the leaden gasometer or jar, as I conceive, a *hydrosulphate of lime*. Dr. Madden states in the *Farmer's Magazine* for October, page 265, that “A MANURE FOR TURNIPS must contain the hydrosulphate of lime, or at least be capable of supplying the elements of that salt;” for it is self-evident, that since this substance exists in the plant (considering that neither of its constituents are of *organic* origin), it must be supplied to it either by the *soil* or the *manure*. Now, if this hydrosulphate of lime, which is *thrown away as refuse* by soda water manufacturers generally, be *really so valuable*, it is of great importance to agriculturists to know that it can be had in such quantities, and so *cheap*; and thus agriculture and commerce would be going hand in hand. Should this meet the eye of Dr. Madden, and set the enquiry on foot, permit me to ask, the best method of mixing this hydrosulphate for the purposes of agriculture, whether with *earth or stable manure*, or any other composition. I beg to apologize for thus troubling you, but as it is an enquiry in which many of your readers will feel interested, I hope you will excuse it. I remain, Sir, your obedient servant,
Rushin, Oct. 28, 1840. ROBERT ELLIS.

APPRENTICES TO FARMERS.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—I shall be very much obliged by some of your numerous and intelligent readers informing me, through the medium of your Journal, on what terms young men are put out apprentice to farmers, what part of the country is best to go to, and how long he should be bound, to learn his business

thoroughly. By inserting this in your next number you will oblige,

Sir, your obedient servant,

A JUVENILE READER.

Dewsbury, Yorkshire, Sept. 7, 1840.

THE FARMERS' AND GENERAL FIRE AND LIFE INSURANCE, LOAN, AND ANNUITY INSTITUTION.—This institution, the commencement of business in which extends over the brief space of six months, may, we are happy to learn, be considered as firmly established, having met with a success which at once ensures its duration, as it affords satisfactory evidence of the interest it has created, and the favour with which it has been received by the agricultural body of the United Kingdom. There is one peculiar feature attendant on the scheme which we do not remember to have met with in any other institution of a similar nature—*viz.*, the appropriation of one tenth part of the profits to a scientific object, and thus creating an additional interest in, and claim on, the large and influential body to whom the objects of the company are more immediately directed. Insurance Companies have, within the past few years, considerably increased, and we now find that each class is fairly represented. We have the Clerical Insurance Company, the Dissenters', the Licenced Victuallers, and others, each calling on their respective sects or connections to lend their aid in support of establishments which are intended to represent each class. Indeed, without in any way trenching upon, or detracting from, the several general and old-established companies, we can readily imagine that they may, generally speaking, reckon on support and encouragement from those who have heretofore omitted to avail themselves of the advantages held out by institutions of this nature. In the present instance, of the setting apart one-tenth of the profits, we find that the “*tithe*” is appropriated to agricultural pursuits, instead of being taken from it—a portion of which is devoted to the distribution of rewards to deserving agricultural labourers, and the residue to purposes connected with the interests of the landlord and farmer. This novel feature will, doubtless, be considered by many as an incentive to the industrious labourer, and, by producing a moral effect on his mind, render cases of incendiarism less frequent. Another prominent feature which may be observed upon is, that having reference to deferred annuities, a provision being made, by which, in case of death, or inability to make further payments, the whole of the money advanced is returned. This is an important consideration, for, in many cases, where persons would be induced to insure, the apprehension of being unable to keep good their payments is a considerable drawback, and too frequently prevents them from availing themselves of the benefits which they might otherwise derive. We have said sufficient to invite attention to the prospectus of the company now before us, but into the details of which it cannot be expected we should enter. The number of proprietors, including many wealthy landlords and farmers, we understand, has reached 1200, while the proposals for policies, in less than six months, have exceeded 2000—the “*life business*” being in like proportion. It is pleasing thus to be able to record the success of an institution, legitimate in its objects, and which promises to yield to the assured more than the usual advantages. It will be observed, on reference to the prospectus, that the society is under the auspices, and directed by many influential noblemen and gentlemen intimately associated with agricultural pursuits.—*Mining Journal.*

ON MANGEL WURZEL.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Your correspondent from Harverfordwest (under date of Sept. 3, inserted in your last number) requests the opinion of mangel wurzel growers as to the cause of so many bulbs running to seed. I am of opinion sowing so early as the first week in April may be one cause, and the peculiarity of this season in the luxuriant growth of vegetables another. I drilled four acres, 28th, 29th, April, and 1st and 2nd of May last, and a great many ran to seed in September; but not so many as your correspondent asserts his did, viz., one-fourth. I should say about one-twentieth of mine, which I have drawn out and consumed by dairy cows, which helped to keep up their milk at a time when grass was falling off in consequence of very dry weather.

I am, Sir, your constant reader,
WM. DANIEL.
Coton Park, Burton-upon-Trent, Oct. 16, 1840.

SIR,—I was on the point of writing to you the other day to ask if any of your numerous correspondents could account for the running to seed of mangel wurzel, when I observed in a late number of your paper, that this question had been asked; and in the *Mark Lane Express* of the 19th inst., Mr. Daniel, of Coton Park, (in reply) thinks that sowing so early as the first week in April may be the cause, and I perceive that Mr. C. Hillyard, of Stranraer, is much of the same opinion, and states that "the seed should not be sown previous to the 20th April."

Now I this year sowed an acre, and I commenced on the 15th April, and carried it on at intervals till the 21st May; yet I never had so many roots run to seed as I have had this season, and I really can see no difference between the early or late sown; throughout August, September, up to the date of this, I have had roots running to seed, much to my annoyance and loss, and I shall be glad if any of your correspondents can point out a remedy, in order that I may "clap a stopper" over this another year.—I remain, your obedient servant,
ALGERNON CAPEL, R.N.

PS. I find the yellow globe beats long red in running to seed.

Bideford, 22nd Oct., 1840.

SIR,—As I am a grower of Mangel Wurzel, I beg to state to your correspondents my opinion on the cause of its running so much to seed. I entirely differ from Mr. C. Hillyard and others on the subject, and that it is not caused by early sowing, as he supposes. I have sown the seed in March, and had not half so many roots run to seed as I have this year, and did not sow the seed till the 9th of May.

I think there are two principal causes; the first, sowing old seed. It is well-known, by the experienced horticulturist, that the seed of the melon and cucumber, if sown five or six years old, it will show flower and fruit much sooner, and more abundant, than seed sown one year old; and so I think with the Mangel Wurzel, the seed of which retains its vital principle about the same length of time. From this circumstance, and from other observations which I have made, it is my opinion, that the younger the seed the less the root will run to seed. The other cause is a dry soil, combined with a dry atmosphere; for I have often experienced, when wanting to throw a plant into flower, that by confining its roots, and keeping the soil in which it grows as dry as possible, with barely sufficient moisture to keep it growing, it will flower

much sooner than under the contrary treatment; and so I find, that, in a dry season, I have more of these mangel roots run to seed than in a moist growing time. Independent of the above causes, there are others, such as bad seed, that is, seed sowed from roots not well selected, &c.

Allow me to take this opportunity of answering a "Constant Reader" in your last. The best time of drawing the Mangel Wurzel is the middle and latter end of October, if the frost do not affect them sooner. I generally store mine in an outhouse, and case them round lightly with straw, and never find the weather affect them. I find them keep best with the roots left on, if in a dry state.

In conclusion, sir, I beg to thank you for the very useful information you give us (farmers), and for your able advocacy of our interest.—I am, Mr. Editor, your very obedient servant,

THOMAS BARRY.

Middle Claydon, Nov. 5, 1840.

THE SHORT-HORNED BREED.

TO THE EDITOR OF THE ABERDEEN CONSTITUTIONAL

Ythanside, Oct. 24, 1840.

SIR,—A correspondent in the *Aberdeen Journal* of the 21st curt., after proving pretty clearly that the so-called Aberdeenshire breed has, by dint of crossing, almost ceased to be a distinct variety, expresses some anxiety to know whether the experiment has been tried of proceeding beyond the first cross, and what may be the result. After glancing over his letter, it has occurred to me that, living in the centre of a district where short-horned crosses of all degrees have been bred to a greater extent than any where north of the Dee, and perhaps in general with greater success, I might be able, with your permission, to afford some information on this matter to your various and widely-diffused readers. I am well aware that all I can bring forward is equally, or better, understood by those in my vicinity, and to such I must apologise for my intrusion; but with others, I know the case to be different, and if agriculture is ever to be placed on the broad basis which it so well merits, among the various branches of human industry, I can see no better means for attaining this desirable object than by the practical farmers in any one quarter making such experiments as come under their notice, known to the farming community at large, while the wide circulation of the public press now affords an excellent medium for the purpose. Some eighteen or twenty years ago, the breed of cattle here, from whatever cause, was allowed on all hands to be on the decline in point of intrinsic value, and various expedients were resorted to for remedying this evil, most of which signally failed. The fame of the short-horns was known solely from report, when the late Mr. Douglas brought a bull of that kind to serve on his farm of Augher Ellon. He was soon after followed by the late Mr. Hay, Shethin, who bought, from the Phantassie stock, the bull Jerry, so well known to most breeders in the low country of Aberdeenshire. Both gentlemen were eminently successful, which their neighbours were not slow to discover, nor slack to avail themselves of similar means. Such as were inclined to hazard a good round sum in procuring a pure bull did so, while others contented themselves with selecting cross ones from the stocks of the first importers, and, in both ways, excellent animals were produced. The superiority of the pure bulls, however, gradually became apparent: and when Captain Barclay opened sales, at Ury, for stock of this description, great numbers of them were largely bought for the north. From the above causes, as most of the principal breeders were neither fastidious in preserving or renewing their stocks of native cows, they have now almost disappeared, giving place to the following practice. At whatever age the farmer wishes

to put his queys to the male, whether at one or two years old (and perhaps from the habits of the animal, the former is the most profitable period), he selects such as show the finest points. As soon as the progeny can be judged of, such as have promising calves are reserved for breeding, the others kept from the male, and fed for the butcher the following winter. All this is done without regard to what cross they may chance to be; but care being had to have them served by a pure bull. I am well aware many will exclaim, "Why, by this process you soon render them pure, or nearly so, and for such stock our soil and climate are not adapted." There may be some truth in this, if the change is to be the work of a season; such, however, is not the case. The progressive alteration affords due time for the animals you are producing to habituate themselves to the soil and climate, and as the farmer gradually improves his cattle, he acquires superior ability and inclination to increase the means of their support. In proof of this, we may mention that we have often seen animals crossed nearly to purity, clothed in a coat which would not disgrace a West Highlander, and good stock of this description produced from land naturally very poor.

The above is some slight sketch of the system which has now almost superseded the native breed in this locality, and which still continues to be followed successfully. The change, too, has been brought about, not by amateurs, but rent-paying farmers, and without the slightest encouragement from the proprietors or the Highland Society; but rather the reverse. Both have here shown themselves most eager to protect the native breed, although the policy of protecting a breed which, when placed in juxta-position with its opponents, shows daily less capability of protecting itself, may seem at least questionable. Now, the farmers in general, in spite of fashion or theory, will breed for their own benefit; and what pays them best is likely in the end to add most to the rent-roll of the landlord. In conclusion, allow me to state one circumstance, in proof both of the sort of cattle produced from the above system of crossing, and the extent to which the Highland Society cramped their late Show at Aberdeen. No one who was on the Green of Udney on the day of the last For-martine Cattle Show will, we presume, deny the merits of the short-horned crosses there exhibited; yet it comes within our own knowledge that none of the prize queys of that stock could be entered at Aberdeen. Such a state of matters surely at least demands inquiry, and such we trust it will meet with at the hands of those who have ever expressed themselves anxious to increase the products of their native land. AGRESTIS.

EXPERIMENTAL FARMS.—At the late meeting of the East Cumberland Agricultural Society at Penrith, Mr. Rigg said much had been said about agricultural societies taking a farm for the purposes of trying experiments of various kinds. He much doubted, from what was said at the great meeting of the English Agricultural Society at Cambridge, that such a plan was not likely to be tried, because, during the discussion upon that subject, it was considered that twelve farms would be too few for trying experiments upon the different kinds of soil and climate in England; and, indeed, he was of opinion that it would require a great number of farms for Cumberland and Westmoreland, the soil and climate being so various; but what was to prevent farmers from trying experiments themselves upon their own farms? He particularly recommended trying experiments; but he would say, "Brother farmers, upon a small scale at first." They should not, by any means, try such as, in case of failure, would injure their property. He was very fond of experiments: his first trial of bone dust was only half a Carlisle bushel; the next year he sowed six acres of turnips with it, and gained the premium at Penrith for them. (*Applause.*) He had also tried some experiments

upon different kinds of wheat, such as had been highly recommended in different newspapers, and by different agricultural societies, as being superior. He bought four imperial bushels of Whittington white wheat, for which he gave at the rate of eight guineas a quarter in London, in December, 1838; and he had with him a number of heads which he could show the company. He also bought half a quarter of golden drop, and in 1839 he bought half a quarter of Russell's white, and he thought that all the kinds would answer well for this climate; and he would supply any farmer wishing to try them with any of the above kinds at a very different price from that which he gave for them himself, say thirty shillings per Carlisle bushel, at Wigton.

ON SOWING WHEAT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

MR. EDITOR,—Experienced farmers in the counties of Gloucester and Somerset assert that the best crops of wheat are generally grown after sowing upon stale furrow, and seed a year old, deposited about two inches deep.

Old seed is preferable they say, on account, that should the seed of fungi be therein, when a year old it will not vegetate.

And the reason they give for shallow sowing is, that atmospheric action on the wheat seed accelerates the acrospire.

Excellent crops have been reaped after sowing upon clean potatoe fallows, having only with light harrows well collected, and eradicated, all weeds therefrom, and then with hoes forming a trench about two inches deep in which the seed was sown, and then covered by the earth taken from the next trench, about nine inches apart, taking care to finish the ground with good water furrows. But in a little volume, entitled "Practical Farming and Grazing," written by Mr. Hillyard (the president of the Northampton agricultural society) a most experienced gentleman, and who has farmed long and largely, and which volume is full of practical useful information and should be attentively read and referred to by all farmers who endeavour to promote the growth of the sustenance of mankind, he writes, "That in 1838 his crops were never finer, and he feels satisfied had other persons' seed been drilled in four inches deep like his, there would not have been such complaints of loss of plant, and he then could show proof for his assertion. In one of the bouts of the drill, in consequence of seed enough not being put into the machine, for forty yards no seed had been deposited. On this being discovered drills were made with a hand-hoe, and corn put in. This, which was put in about two inches deep, came up much sooner than the other put in four inches and looked best till Christmas, but from the frost getting to the roots of it during the severe weather we then had, every root went off in the spring.

As the above accounts are taken from authorities, would it be worth the trials of attentive farmers to sow according to the different ways above described, and likewise in their own respective accustomed manners?

I feel confident the results would be kindly received by the British Agricultural Society at its next meeting, and the agricultural community at large would be greatly benefited.—I am, Sir, yours obediently,

SOMERSET.

Oct. 1.

LANCASTER AGRICULTURAL SOCIETY.

The annual show of this old-established Agricultural Association was held on Saturday, October 10th. The stock shown was good, but exhibited a falling off in quantity compared with last year. A proposal was made at the dinner by which small farmers might be induced to send their stock to the Society's meeting, and it will be matter for the consideration of the committee whether premiums shall not be offered at the next meeting, exclusively for stock belonging to the occupiers of farms of less than a hundred acres. At present this class are deterred from competing with the wealthier and more spirited agriculturists of the district, such as the Ellisons, the Jacksons, the Burrows, &c., and also with the country gentlemen and landowners belonging to the Society, who can not only afford to buy the best stock, but also to feed it in such a way as to bring it in the field in the best possible condition.

THE DINNER.

About three o'clock sixty of the members and friends of the Society dined together after the show at the Town Hall. John Bolden, Esq., of Hyning, President of the Society, took the chair. Among the company were J. Wilson Patten, Esq., M.P.: Thos. Creene, Esq., M.P.; — Sparling, Esq., Greene Bradley, Esq., T. H. Bateman, Esq., W. B. Bolden, Esq., A. R. Ford, Esq., J. Walmsley, Esq., John Bond, Esq., W. Lamb, Esq., — Gibson, Esq., Whelprigg, S. E. Bolden, Esq., W. Gibson, Esq., — Drinkwater, Moor Plats, W. Robinson, Esq., R. Wilson, Esq., and other gentlemen of Lancaster. Mr. T. Jackson, of Barwick Hall, acted as Vice at the foot of one table, and Mr. W. Ellison at the other. The cloth being drawn, the usual loyal toasts were given.

The judges were Mr. Outhwaite, of Darlington, Yorkshire, Mr. Minton, of Staffordshire, and Mr. Fair, of Lytham.

Mr. MINTON acknowledged the compliment, and returned thanks in a speech of considerable length. He need not dwell much on the stock exhibited that day, the greater part of which was very superior. The cows were good, and the sheep fair. When, however, he said the stock was generally good, he must not be understood to mean that nothing remained to do. He impressed upon meetings of this sort the importance of directing their attention, not so much to the improvement of stock, but to the cultivation of farms (*hear*). It was in vain we got good stock if we did not get food for them (*hear*). There was a great variety in different soils—that in the neighbourhood of Lancaster was, under proper management, fitted to grow both white and green crops. He complained, however, of the slovenliness of the farmers in some parts of the neighbourhood. The fundamental principle of agriculture was draining. If the soil were wet, the same benefit from manure and a good selection of seeds was not experienced, as if under draining were properly attended to. He was the more qualified to speak upon this subject, as he had himself found the benefit of draining. The farm he possessed was an active and rather loamy surface soil, and a retentive and stubborn subsoil. He had tried several experiments in under-draining, but had found the plan described by Smith, of Deanston, the best. In the small pamphlet published by Mr. Smith, the meeting would find detailed the proper method of proceeding. Not only was the land cultivated at less expense after draining, but altogether with greater benefit and plea-

sure. When the land was drained, the next thing was to find the best system of alternate cropping suited to the soil. In a paper he had read to-day, he found it stated (at the Burton meeting) that it was not desirable to offer a premium for the growth of clover. That, he thought, was a mistake. The sowing of clover on barley or wheat, if the land had been sufficiently prepared for it before, and fully divested of weeds, he had performed nine out of ten times successfully—with a good crop of barley, five quarters to an acre, 50 or 60 measures of oats, and such a crop of clover next year as he really believed was of more benefit to him than the white crop (*applause*). He made these observations because he should be sorry if it should be understood that a good white crop and a good clover crop could not be obtained together. Both his colleague (Mr. Outhwaite) and himself had accomplished this. Until farmers adopted a good system of rotation, they would never find their crops so good or so profitable as they might become (*hear*). After under-draining and a good system of cropping, the next was the selection of seeds. Attention to this was very necessary, particularly with turnips and cabbages. A great deal of the turnip seed sold at the shops was bad, and the badness of the seed was one cause of the failure of the crop. Another was the want of proper thinning as well as weeding the crop. Nowhere did he find the proper hoeing, thinning, and weeding turnips neglected so much as in this neighbourhood (*hear, hear*). If a farmer allowed the weeds to grow with them, if he did not succeed in cleaning as well as thinning them, and if he did not take care that his seed was good, he could not expect to have a good growth of turnips. The fault of the turnips of this neighbourhood—and it was partly the fault of the seed—was that they grew with too much top and bottom, in which there was no profit. What was wanted was only the bulb, for food for cattle. More attention, too, might be advantageously paid to the selection of seed for grain, crops, by which means the farmer might have a much better yield. He thanked the meeting for the compliment they had paid him and his colleagues.

The CHAIRMAN gave the health of Mr. Patten and Lord Stanley, the members for the northern division of the county (*applause*).

Mr. PATTEN said the increased exertions which these meetings testified were going on in agriculture were very satisfactory. Agriculture has been too much neglected hitherto, of which there was sufficient proof in the neighbourhood of this town. The Duke of Hamilton, Mr. Clifton, and other landlords were doing all in their power to remedy this, and in so doing they were conferring great benefit on the county. If the county did not take advantage of what was being done, it was the fault of the farmers and not of the landholders. The Lancashire members of the English Agricultural Society had been so fortunate as to secure the next meeting of the society at Liverpool, and the farmers of this district ought by all means to attend. They would see cattle of very superior quality to any in this neighbourhood; they would meet the first agriculturists from different parts of the country, and if they had their eyes about them would take home suggestions for improvement which would put a different face on the country (*applause*).

The PRESIDENT said the best return he could make was to continue the same line of conduct that had obtained their approbation; and if it pleased God to favour him with health—Here the worthy President, who has suffered a good deal lately from ill health, paused, being overcome by his emotions.

The company evinced their sympathy by loud applause and Mr. Bolden proceeded—he hoped to continue his services to the society (*applause*). Before giving their next toast of “Success to the Society,” it would be gratifying to the meeting to know that the society’s funds were in a particularly prosperous state, so much so that at a meeting of the committee it was determined to alter one of the premiums, and give an additional one. The society at present gave a premium for bulls of all ages, but it was well known that it was impossible for a yearling bull, however good, to compete with one of mature age; the committee, therefore, suggested that a premium be given for a bull of a year old, and another for bulls of two years old and upwards. Another improvement proposed was the formation of a Farmer’s Lending Library, on the plan of one proposed by Lord Stanley at Liverpool, for the diffusion of books upon agriculture. He was sorry to say that among the older farmers there existed a strong, and, he must say, absurd prejudice against what they called “book-farming.” He could not express his opinion of this better than in a pithy and appropriate observation he had heard at the great Cambridge meeting, from one of the judges. The day before the great meeting, a private party, as it was called, though it consisted of nearly 200 persons, dined together, and at this meeting he (the President) had the good fortune to be present. A good deal of discussion took place about farming matters, when a model farm was generally recommended, and all were agreed upon the necessity of an agricultural school or college. Well, on the health of Mr. Torr (as we understood), one of the judges, being given by my Lord Spencer, that gentleman, who was not only a large farmer, but a large rent-paying farmer, said, “*I never found that a little knowledge in my head at all interfered with the use of my hands*” (*great applause*.) How did it happen that the farmer alone could do without instruction? Suppose a medical man endeavoured to set up in business without information, or an engineer, or a lawyer. In addition to the books on agricultural subjects, which a small yearly subscription would procure, they might reasonably hope that gentlemen in the neighbourhood would present them with books. It was impossible for any one man to buy for himself the large and sometimes expensive books published upon agriculture. It was also proposed in conjunction with the library, to establish a farmer’s club, where farmers might meet in the spring, summer, and autumn months, once a month or fortnight, confining themselves to subjects of agricultural information. It was for the meeting to consider the matter, and appoint a committee if they thought expedient. They were all aware of the epidemic that had recently prevailed among the cattle in the south of England, and indeed elsewhere around them. Fortunately this neighbourhood had almost altogether escaped. He trusted, however, the farmers present would pay double attention to their cattle, for if it should break out there would be great difficulty in stopping it. To-night they would see their cattle well, and to-morrow they would be lying prostrate at their feet. In many places the mode of treatment for the epidemic was little known, and the English Agricultural Society, having founded a professorship in the Veterinary College especially for the diseases of cattle, sheep, and horses, encouraged farriers to apply to the Veterinary Professor for instructions upon this point. If any of the farriers in this neighbourhood had doubts respecting the treatment, and would apply to himself or any other members of the Royal Agricultural Society, they might be put into

communication with the Professor of the Veterinary College. There was one other point. At the last October meeting, he had strongly impressed upon the judges of horses, at the next May meeting, to pay attention in awarding the premiums to horses of good action, as *quick walkers*. At the society’s ploughing match in March, it was the general opinion of the committee, that though the competitors did their work well, they were sadly too long about it (*hear*). It was very important that horses and men should do their work quickly. Formerly, after spring work was over, the plough was put to sleep for the rest of the year. But now the plough was at work all the year round, and if by having horses which were fast walkers they only did a few perches more in a day, see what a deal that would make at the end of the year. Some farmers, too, were in the habit of suffering their horses to get below par in the winter, but when they were out of condition they were got up to work with great difficulty, and at more expense than if they were kept tolerably well throughout. He was sure that more was lost by this starvation system than by feeding them well. He was the more anxious to say this because it was known he was no friend to the other extreme of fattening them. The President went on to express his hope that the farmers of this neighbourhood would make a point of attending the next great Liverpool meeting. By the railroad they might all go and return the same day. To those farmers, who were, like himself, getting into the vale of years, he would say “Go, because in all probability you may never have an opportunity of such a meeting again.” But the young man who was forming his stock and entering life he would more particularly recommend to go. He would there see the best models of stock, the best seeds, and the best agricultural implements from Scotland as well as England. It might be comparing great things with small, but the sculptor and the painter never deemed their education complete until they had travelled to Italy, to see those works of the best masters both in sculpture and painting which left us far behind. So he would recommend those engaged in the breeding of stock to see models of excellence elsewhere. Not only would they be gratified by their visit to Liverpool, but instructed and improved. (The President sat down amidst loud applause.)

The President next gave the health of the Duke of Hamilton, the Patron of the Society (*applause*).

The toast of the Members for the Borough was acknowledged by

Mr. GREENE, who said he was at a loss to account for the absence of his colleague (Mr. Marton) because he agreed with him in thinking these meetings of the greatest possible advantage to agriculture. Here farmers might compare different modes of farming and learn the results of any experiments their neighbours had been making. The collision of intellect had advanced every other science, and why not farming. Whence were colleges formed? Because there were no means of easy communication with different parts of the country, and studious men flocked together to some one common point, to advance learning and perfect science. In manufactures the skill that had been displayed, and the improvements that had been elicited, arose from persons being brought together, and to the collision of interests and emulation. The speeches of Mr. Minton and their chairman—the former delivered, he must say, in a most masterly manner—it was impossible to listen to without benefit; and he hoped the farmers present would go home and reflect how far they might make the sug-

gestions they had heard available on their own lands. Neither should they complain that fault had been found—a meeting like that was indebted to those who would find fault, for it might set them upon adopting plans for improvement, or examining into the deficiencies of their own. No one would deny the force of Mr. Minton's observations about the great want of a more effectual cleaning of the land, or of the necessity of meetings like the present paying a greater degree of attention to cultivation. On a former occasion he (Mr. Greene) had pointed out the propriety of giving more premiums for the cultivation of the soil. The improvement of stock throughout the country had followed upon the establishment of the Smithfield Show, and ever since that, the improvement of stock had been the exclusive object of almost every Agricultural Society. Now so much had been done towards the improvement of stock, that he hoped that the Local Agricultural Societies would take up the cultivation of the soil to a far greater extent than they had done. Indolence had never been the characteristic of the English farmer, but he must work not only with his hands, but also with his head (*hear, hear*). If farmers would do this and stand by themselves, they need fear nothing from the pressure from without.

The Secretary here read the list of premiums as follows:—

CLASS 1.

1. Farm, not less than forty statute acres, in the state of the greatest improvement and best general state of cultivation.—A silver cup, or five sovereigns. Three competitors. Mr. G. Longton, Kellet.

"State of husbandry and improvements made upon the farm occupied by me, situated within the township of Over Kellet, in the county of Lancaster.—The extent of my farm, or farms, is 123 acres and 7 perches, customary measure. When I commenced upon my farm in the year 1835 I found it in a poor state of husbandry, viz., 18 acres of oat stubble; the following year the above were fallowed, and about six acres sown with turnips. Lime was set upon the land, on an average of about 300 loads yearly; manure purchased yearly, 70 to 80 tons, besides consuming all my hay and straw upon the premises.

"In 1835 I grubbed 15½ roods of fences, to make the fields square, at 1s. per rood; in 1837, 2½ roods for the like purpose. In 1838 I cut and drained 100 roods, at landlord and tenant's expense; and in 1839, 60 roods of mixed fences, one half at my expense.

"My turnip land, which is about six acres yearly, I cover with lime before I sow it with barley and seeds, unless the turnips be eaten off with sheep.

1840—Fences cut and soddied up 72 rood.
1840—Fences cut..... 190 do.

STATE OF FARM THIS PRESENT YEAR.

	A.	R.	P.
Meadow land	6	0	0
Pasture do.....	84	2	14
Potatoes.....	0	3	9
Barley and white clover	4	1	0
Do. and red clover	5	2	0
Clover seeds without white crop, the turnips eaten off by sheep ..	3	2	24
Turnips	6	0	0
Oat-stubble ..	9	0	0
Wheat do.	3	1	0

123 0 7

"Stock upon farm—7 milch cows, 1 bull; four-year-old oxen, 20 to 25, kept in summer and winter; 8 or 10 cows, fed for the butcher; 80 sheep do.; 70 sheep fed upon turnips; 4 work-horses used upon the farm; 3 young horses, 4 store pigs, and 1 breeding sow.

"Geo. LONGTON."

3. Best crop of turnips.—A silver cup, or three sovereigns.—Eight claimants. Mr. James Seed, Capernwray.

4. Best general stock of store cattle. A silver cup, or five sovereigns. Five claimants. Mr. G. Presow, Stubb Hall, Halton.

"George Presow's farm, at Stubb Hall, consists of 100 acres of land with the allotments, 30 acres of which are thin cold land. The number of my stock is—

Milch cows	16	Fat sheep	16
Two-year-old heifers ..	6	Work horses	4
One-year-old heifers ..	3	Brood mares.....	2
Calves	7	Three-year-old filly ..	1
Bulls	2	Yearling fillies	2
Leicester ewes for breed- ing	31	Colt foals	2
Lambs	41	Store pigs	4
Tups	2	Breeding sow	1

"GEORGE PRESOW.

"Stubb Hall, Oct. 9, 1840."

The following is the Inspectors' report:—

TO THE SECRETARY.

"SIR,—We have great pleasure in announcing to you, that we feel highly gratified with our undertaking as inspectors for your society; having, in the first place, found turnips a very superior crop, and under such management as does credit to the respective candidates. We have found the stocks generally of fair quality, but in two instances very superior. As to the best managed farms, we believe that more honour was seldom if ever due to any claimants for that premium: we have had great difficulty in awarding that premium, but we are confidently satisfied of having done so with justice to all parties.

"W. BARRETT, Warton.

THOS. MARGINSON, Bolton-le-Sands.
THOS CORBISHLEY, Thurnham."

CLASS III.

8. The best bull of any age.—A piece of plate, or five sovereigns. Three claimants. Mr. W. Ellison, Sizergth.

9. Best cow in milk or calf.—A piece of plate, or three sovereigns. Mr. W. Ellison.

10. Best two-year old heifer. Six were entered for this prize.—A piece of plate, or three sovereigns. T. H. Bateman, Esq.

11. Best ram.—Three sovereigns. Four claimants. Mr. G. Presow, Halton. Given to Mr. John Ellison, Sedgwick, as second best. [Mr. Presow had several premiums awarded to him, but having obtained the premium for the best general stock, was precluded by the rules from receiving any other premium in the same year.]

12. Best three shearing gimmers.—Three sovereigns. Three claimants. Mr. G. Presow. Given to Mr. John Ellison, as second best.

SWEEPSTAKES.

5. Short-horned cow, in calf or milk, not fed for the butcher, 10s. 6d.—Three competitors. Mr. Lamb, Hay Carr.

10. Short-horned heifer, one year old, 10s. 6d.—Two competitors. Mr. W. Lamb.

14. Brood mare, 10s. 6d.—Three competitors. Mr. T. Marginson, Bolton. Mr. M. purchased this mare from the Lancaster canal company.

15. Three-years old colt or filly, 10s. 6d.—Two competitors. J. Wilson Patten, Esq.

16. Two-years old colt or filly, 10s. 6d.—Two competitors. Mr. Lamb, Hay Carr.

17. One-year old colt or filly, 10s. 6d.—Four competitors. T. Green, Esq.

18. Foal, 10s. 6d.—Five competitors. E. G. Hornby, Esq.

21. Tup lamb, 5s.—Two competitors. Mr. J. Bateson.

23. Ewe, which shall have suckled a lamb during the season, 7s.—Three competitors. Mr. G. Presow.

25. Ewe lamb, 5s.—Three competitors. Mr. G. Presow.

28. Turnip, 5s.—Two competitors. T. H. Bateman, Esq.

29. Cabbage, 5s.—Five competitors. John Bond, Esq.

PREMIUMS OFFERED BY THE EARL OF DERBY.

Best foal, by *Amurath*, 5*l*.—Six competitors. Awarded to E. G. Hornby, Esq.

Best yearling colt or filly, by *Amurath*, 5*l*.—Two competitors. Mr. James Bourne, Cockerham.

The President then proposed the health of the Inspectors of crops, Mr. Barret, of Warton, Mr. Marginson, of Bolton-le-Sands, and Mr. Corbishley, of Thurnham, with thanks to them for their services (*The toast was acknowledged by Mr. Barret*).

The healths of Mr. Longton, Mr. Seed, and Mr. Presow, the Successful Competitors for Crops, were given, and Mr. Longton returned thanks. The healths of Mr. Bateman, Mr. W. Ellison, and Mr. J. Ellison, the Successful Competitors for Stock followed.

Mr. OUTHWAITE, as one of the Judges, was here called upon to make a few observations respecting the stock, &c. He was received with applause, and proceeded to say that the judges had had an arduous task in deciding upon some of the stock shown to-day. With the cows especially they had had great difficulty (*hear*). So with the foals; they had a high opinion of those marked 1 and 3. Merit was due also to the owners of the pigs and sheep shewn. At the shew on Wednesday (*said Mr. Outhwaite*) I complained of the want of draining, and said I did not know whose fault it was, that it was so much neglected—the landlord's or the tenant's. But I have since made inquiry, and I find that the tenant is more to blame than the landlord. In our country he is thought a very liberal landlord who finds the materials, but here the landlord is expected to do something towards filling and cutting the drains, so that the tenant has only the leading of materials, and one half the expense of cutting to bear. with these advantages the land ought to better drained and cultivated not only (*said Mr. O.*) for the credit of the tenant but for his benefit. Another thing his colleague and himself had before observed upon was, that draining was of no service unless the ditches were kept clean. They should be cleaned and emptied once a year, and on grass lands the farmer would find it to his interest to clean them twice. Let the land be drained ever so well, that was of no use without the ditches were kept properly clean. Neighbours should all join hand in hand to help each other in procuring a clear descent for the water to get away. The fences too, were in a very wretched state hereabouts (*hear*). They seemed to be just as they had been sent (*a laugh*). They could never have been planted, but must be just as they had been grown. He would strongly recommend the tenant to see to his hedges and fences, and even if he were only three or four years on his farm it would repay him. A great deal of good soil had laid dormant about them for many years, which if brought into cultivation would remunerate him (*applause*). Mr. O. went on to notice the remark about clover at the Burton meeting, previously noticed by Mr. Minton. [Both appeared to misconceive the purport of the remark, which only went to this extent, that in the neighbourhood of the place where it was made, a good clover crop was not so good a test of good husbandry as a good turnip crop—the heavy grain crops of good farmers sometimes choking the clover, while the poor crops of the bad farmer left more space for the clover.] It was not a proper time to view the clover till the corn was cleared away. In Northumberland and Lincolnshire the value of these green crops of turnips and clover was fully acknowledged. He himself (*as we understood*) after getting a crop of barley of eight or ten quarters to the acre had got a crop of clover that could not be better. Of white

clover for pasture he had some every year, and both white and red clover was very beneficial to the land. In his country those farmers rarely had good crops who did not grow clover, and we could not pay our high rents (*said Mr. O.*) unless we did. Nothing improves land more than clover and turnips, where it was well drained and managed. After clover the most remunerating thing was a crop of turnips. Farmers complained that they had not a good crop of corn after turnips, but they had no right to have it. He had seen a great deal of a weed called kail in his part of the country in the fields here, in some places called ketlocks. The turnip fields he found generally full of it—a very disgraceful thing, as it could be cleared from the ground at a light expense. (*Mr. Outhwaite after thanking the company sat down amid loud applause.*)

The President said the company were greatly obliged to Mr. Outhwaite for his remarks, and proceeded to describe to the company a drill he had seen at the great show at Northallerton, which put a little manure into the ground with the seed, so that turnips were hardly ever found to miss, and did not require a third of the manure at present put on. Some put in bone by the drill, and no one who had not tried it could imagine the advantages of this new machine.

Mr. JACKSON, of Borwick Hall, asked Mr. Outhwaite if he could tell the company why red clover went away in the spring so much? Frequently in the autumn after the white crop was gone off, it looked as nice as could be, and then in March or April it went away in patches and soon quite disappeared.

Mr. OUTHWAITE said he had put £268 of artificial manure on his corn and turnips this year, and he should not have done this had it not paid him pretty well. He described the satisfaction expressed by two visitors from different parts who had lately looked over his farm, with these and his other improvements, viz., Col. Graham from Scotland, and Sir R. Bateson from Ireland. His farm was 600 acres at 50*s*. an acre. It was customary in his father's time to grow from 60 to 70 acres of turnips—now he grew from 90 to 100 every year. There was nothing so good as bought manure for turnips, but this in a thinly populated country in the neighbourhood of no large towns, could not be procured, and he was accordingly obliged to have recourse to artificial manure. He knew the drill described by the Chairman, and as he used it himself he could bear testimony of its advantages. First they furrowed up the ridges with it; he had a machine which would do two ridges at a time. Then the seed was put in with artificial manure—bone for turnips, and rape for corn, and the remuneration was tenfold (*hear, hear*). What "beat" his visitors was, how it was possible this small quantity of manure was left unobstructed by the small hoe. But he did not use the small hoe, and had twenty-five women hoeing by the hand alone. A horse hoe went down the middle, and the plants were examined by the hand, care being taken that they were all set at proper distances. Thus the artificial manure was not disturbed from the plants. As to the cost of this plan it was 4*s*. an acre for setting, and then there was the weeding in addition to that. The extra expense by hand-setting was only 4*s*. an acre more than by the hoe, and he considered the crop was worth more by £2 an acre (*hear, hear*). That was sufficiently remunerating he thought. In examining the turnips to-day, it seemed as if the farmers had no knowledge of hoeing their land. In some instances he found three turnips within the space of twelve

inches, and in others they were very irregular. With respect to red clover going off in patches, he did not know that he could satisfactorily explain that. The farmers about him thought that clover would not grow on the same land more than once in eight or ten years. Since, however, he had grown turnips, and used artificial manure so abundantly, he had never had a failure in his clover (*hear*). He had never had half an acre miss (*hear*). He was inclined to believe the artificial manure—bone and rape—prevented the clover going off from the land, and become tired of it, or “clover sick” as it was called. No doubt rape and bone were very improving things towards la a.

THE PRESIDENT.—What do you give for your rape dust?

MR. OUTHWAITE.—Thirty shillings worth for an acre.

THE PRESIDENT.—But what does it cost you?

MR. OUTHWAITE.—£6 10s. a ton.

THE PRESIDENT.—Ah! it's same as here.

A MEMBER asked Mr. Guthwaite whether he had ever used the nitrate of soda?

MR. OUTHWAITE said he had not, but intended to try it.

MR. ELLISON asked in what part of Lancashire Mr. Outhwaite saw kail growing in turnips.

MR. OUTHWAITE.—In the north, and on the borders of Westmorland (*a laugh*). I don't want to throw cold water on all the tenants in this neighbourhood, but nineteen of the turnip fields out of twenty are full of rubbish (*laughter*).

A MEMBER asked Mr. Outhwaite whether he got his clover from abroad, and was answered “Yes; from Holland.”

MR. ELLISON doubted whether Mr. Outhwaite had seen in Westmorland, or in the northern part of Lancashire, these ketlocks among turnips. At the Kendal meeting, the fields of the eleven claimants for the best turnips were all so perfectly clean that one of the judges, Mr. Pattinson, of Hole Beck, paid them the greatest compliments, saying they were like a garden. Cattle were said to have been improved more than farms. Did they know why? Because the farmer knew if he improved his farm it might be taken away from him, but if he improved his cattle they could not be taken away from him, and consequently he was sure to reap the benefit of that. He would say that the backward state of agriculture in this district, and the slow growth of improvement, was owing to the landlord's refusing to grant leases to their tenants. He (Mr. Ellison) had the honour to be agent for several estates, and when he had asked farmers why they did not drain, they told him because they had no leases. Several other farms of from 200 to 250 acres were in a like deplorable state. But he (Mr. Ellison) had induced the landlord to cut drains and the tenant to lead all materials—he had given them twelve years' leases, and now they went on draining and improving with vigour, having now a reasonable prospect of being repaid for their outlay. Depend upon it, if landlords would grant leases tenants would drain and improve. Why was it that agriculture was so flourishing in Scotland—because there the farmers had leases of 19 and 21 years. He (Mr. Ellison) knew a member of a noble house who had endeavoured to get a Scotch tenant for one of his farms. The tenant asked first thing for a lease. “Oh,” said the landlord, “can you not depend, on my house and on me?” “We depend on no man,” said the Scotchman, “we must have a lease” (*hear, hear*). Farmers here would not be so tenacious about long leases as the Scotch—they would be satisfied with

leases of 12 years, instead of 19 and 21—but leases they must have (said Mr. Ellison) and then they will respond to your demands; they will drain your land and adopt improvements (*applause*).

MR. ELLISON recommended that all clover seed should be tried before being committed to the ground. This was the more necessary, as he had just heard that three hundred tons of doctored seed had been sent this year from various houses in London. A traveller, connected, he supposed, with one of these houses, had lately the audacity to ask him after giving him an order for seed, whether he would not take a little “prepared seed.” This doctored seed would vegetate a little, but its powers were weakened, and it could not live through the winter. A person whom he knew was offered some of this seed in Mark Lane, but he hung the sample in the man's face, with “Man! don't show me such seed.” The poor farmer, however, could not detect the difference, and suffered from the failure of his crop.

MR. BOND said that last year he had suggested that a premium should be offered by the society, for any means of averting the failure of the clover crop. Mr. Matthew Jackson (brother to the Vice-President), last year said it was done by the grub, the same from which the oats suffered. The Vice-President, however, seemed to think it was from the soil “throwing out,” and becoming clover-sick. He (Mr. Bond) had noticed that in a clover field that had gone off in this way, it was only strong where the cart wheels had gone over it with the last year's crop, and also at an angle of the field where the roller had been. In another field the clover had gone off everywhere, except on two ridges, a couple of yards from the hedge, which had been sheltered from the north-east wind. By mentioning cases like these, the cause of the failure of the clover crop might perhaps be made out. The farmer not only lost his clover, but also the crop of oats after it (*applause*).

THE PRESIDENT had heard that the seed was doctored by the fumes of sulphur being used to give it a bright and shining colour, and that a chemical test might be brought to detect the sulphur.

MR. SKIRVING, seedsman, said trefoil seed 30 years old, worth a shilling a cwt., was passed off as new clover seed, and sold at 4l. 10s. There was not a more valuable and important crop than clover; turnips came next. They might prepare their fields as they liked, if for 2s. to 3s. a cwt. they would not get genuine seed, and preferred to put weeds and worse into their land. A large capital was embarked in this abominable trade, and a member of Parliament he could mention was extensively concerned in it. He could give the meeting the amount of tons sent out to unsuspecting judges in the country, and sold by chemists, ironmongers, and others, who knew nothing of its value. A great deal was also sent to Ireland. He would recommend them to try the seed before sowing it; the chemical test suggested by the chairman he feared would fail. The colour of the doctored seed was admirable.

MR. JACKSON could not think the clover went away in the spring through the seed. He had followed a field, manured it, sowed it with barley, and then with clover. When he cut the barley, the clover was fine all over the field, but in the spring it began to go away. The tops went away in March and April, but the roots continued good.

MR. SKIRVING.—Had you rolled it?

MR. JACKSON.—No.

MR. SKIRVING.—You should have put the roller over it, if it had been a light soil, half a dozen times. Mr. JACKSON thought the land was clover sick.

though with his rotation of crops it would only be clover once in eight years. Mr. Outhwaite seemed to think that if they got artificial manure out of Yorkshire it would do. In his (Mr. Jackson's) opinion, our land ought to be in pasture three or four years. How was it white clover never missed after it came up?

Mr. SKIRVING said that they were two totally different plants. The red clover was a native of marl, and did not like light land. On light land the roller should be used often.

Mr. LAMB thanked the meeting for the honour done him in connection with Mr. Brockholes. The meeting, however, were not all indebted to him (Mr. L.) but to the Duke of Hamilton, who he was sure would feel gratified at sending anything he had in his manors or in his gardens for the use of this society (*loud applause*).

FARMERS' LENDING LIBRARY.

Mr. BINNS read a prospectus of the Liverpool Farmer's Lending Library, the model upon which it was proposed to form the Lancaster Library.

Mr. BINNS added that he was present at the opening of a similar society in Staffordshire, to which a small garden was attached for the purpose of trying seeds, &c., and which appeared to work very usefully.

SUBJECTS FOR DISCUSSION.

Mr. BINNS said the first subject appointed for discussion was the construction of township roads.

The PRESIDENT.—I don't know any one who has had more experience than yourself.

Mr. BINNS said he had prepared a paper on this subject for the last meeting, but had not time to read it. One of the Editors had asked him for it, and it had been accordingly published. [Mr. Binns' paper appeared in the *Guardian* of October 12, 1839, and its publication did much to diffuse more correct information upon road making.] As it had been published, he did not think it necessary to say much on the subject, but as he observed a gentleman present from Cumberland, he was glad of the opportunity offered him, of exposing the shameful system pursued near Egremont and Whitehaven, of placing huge stones upon the road, to compel horses to go upon a thick coat of loose and newly-broken stones. These stones were from 12 to 18 inches square, and were extremely dangerous, in cases of horses running away or shying when the driver loses control; they are extremely annoying to those who drive their own conveyances, by preventing them from viewing the scenery or agriculture of the country on passing, the whole attention being necessary to steer clear of these nuisances. These also are the means of increasing the distance, and are in every respect intolerable and contrary to law, and against which every traveller ought to complain, and which the gentlemen in the country ought to set their faces against. The supposed necessity for these blocks would be obviated, by covering the stones newly laid with scrapings from the road, which would render them easy to travel over, at the same time forming a cover or cement that would reserve the stones from wear. Thus economy as well as comfort would be gained.

The PRESIDENT.—When M^r. Adam first proposed his plan he began with stones of two inches, but it was now found that one inch stones lasted longer, and would better.

Mr. ELLISON proposed the health of their Secretary, who performed the arduous duties of the office certainly better than any one else could do (*applause*).

Mr. BINNS, in returning thanks, said it was gratifying to see the present company and the present state of the funds. He did not know how old the Lancaster society was; he believed there was no record of its establishment.

The PRESIDENT.—I believe it was established in 1799, and I am one of its oldest members.

Mr. BINNS.—I have been Secretary 30 years, and

was a member before that. When I took the Secretaryship the Society was in debt; now we have cleared all off, and have something to spare. A great deal had been said about the miserable state of the crops, but when they looked back and saw what had been done there was plenty of encouragement for the future. One of the judges at Ashton said "If there had been improvements hereabouts what must the state of things have been before?" He (Mr. Binns), however, remembered the time when there were no Leicester sheep, no short-horned cattle, no turnips, little or no draining, and when thistles grew in the fields far more abundantly than now. He remembered looking over one farm and complaining of the thistles, declaring that it was abominable to see such rubbish, when the farmer replied that "they were of great use," and on being asked what use they could possibly be of, his reply was, "they are useful to shelter the sheep in winter." On another farm was a field which he could not make out to be either pasture, grain, turnips, or any thing else. What to call this in the report he did not know, and he asked the farmer. "Oh I let it lig (lie)," was the reply; so "let lig" was put down in the report (*a laugh*). This term was sent accidentally to the owner of the estate, who of course required an explanation.

Mr. JACKSON.—What country are you talking about, Mr. Binns?

Mr. BINNS.—Not far from Borwick Hall (*a laugh*). It was cheering to see prejudices giving way, notwithstanding farmers were not all what they ought to be. Turnips were a great improvement, and were greatly increasing in the neighbourhood. So was clover. The nucleus of a Farmer's Library already existed in the four first numbers of the English Agricultural Society's Journal, and in the three volumes of the Herd Book, a valuable and scarce publication, one of the numbers being out of print. It was highly desirable to induce, if possible, more small farmers not only to attend the meeting but also to shew stock. It might be desirable to form a second class of premiums—say for farmers under a certain rental. Farmers knew the superior character of the stock of Mr. Jackson, the Mr. Ellisons, &c. and they said we can't show against these gentlemen (*hear, hear*). The farmers had good cows, if they could only by these means bring them to the show.

Mr. BOND suggested that the premium should be open to farmers occupying less than a hundred acres. Farmers did not always like their rental to be known (*hear, hear*).

Mr. FORD.—Mr. President, I shall be happy to give 2*l*. extra for the small farmers' premiums (*applause*).

Mr. BINNS said one of the effects of opening a farmers' library would he hoped be, that the common botanical names, if not the Linnean name, of plants might become known, so that they might be known under one name from one end of the kingdom to the other. The weed alluded to by the judges was known in some places by no other name than the yellow weed. He had often wondered why more interest was not shown in agricultural improvement by consumers, for they were more interested in improvement than the farmer. He was surprised tradesmen and manufacturers did not come forward at these meetings and support their society. If by improvement they could grow a third more wheat, and everything else, than at present, it was the consumer who would be principally benefited (*applause*).

The PRESIDENT gave "Prosperity to the English Agricultural Society."

Mr. JACKSON.—We used to give a premium for draining, and I beg we may do so now if our funds will allow.

FORMATION OF QUICKSET HEDGES.

The second subject advertised for discussion was on "the proper mode of raising quickset hedges, and their permanent form."

No one coming forward to discuss the subject, the President again applied to Mr. Binns to favour the meeting with any remarks.

Mr. BINNS replied that he had nothing prepared for the occasion, but he should be happy to throw out any hints, or state what he knew respecting it. He would recommend strong and vigorous thorns to be planted, the ground having been prepared by trenching and manuring: for any expense incurred in this respect was a great saving eventually, the hedge arriving at maturity much sooner and dispensing with protection. In dry ground the thorns ought to be planted on the level, but if the ground were inclined to wet, it might be advisable to raise it by a sod or two, but not more in any instance, having a small ditch or trench on one side. The thorns ought not to be divested of the whole of their branches at the time of planting, because it is much easier for a plant to put forth leaves from buds already formed, which assist the root, than to originate new buds and force them through the bark. Therefore he would cut off the heavy shoots only, that is, such as the wind would take the most hold of, and shakes the young fibres of the roots. The plants should then be completely protected on both sides, and during their growth kept free from weeds. Two years after planting the thorns should be cut down to about three inches from the ground, and as their roots have by this time got established, and the plants become vigorous, they will throw out healthy shoots, which will form the foundation of a strong and impenetrable fence. After these new shoots have grown two years, shorten them on an average to about fourteen inches from the parent stock, but do not do this evenly with a pair of shears, but with the knife or nippers; this operation requires skill and care, for no two contiguous shoots ought to be cut the same height, the shoots throughout should be cut at every possible variety of length, between six inches and 18 or 20 inches, keeping the branches thinner and narrower as they approach the top. In this way the shoots never crowd each other, by stems near together branching out at the same place, and consequently make a stronger hedge. As the plants advance, this system may be pursued till they arrive at maturity, which will be in a comparatively short time; after which the hedge may be preserved in a proper form by cutting it with an old scythe or knife in a longish wooden handle, taking care to keep it the widest at the bottom, and tapering gradually to a fine edge at the top: by preserving this form, every branch has the advantage of the light and moisture, and is free from the incumbrance of the branches above, which always has a tendency to destroy the lower part of the fence. Mr. Binns remarked that he never saw a better hedge than one in Mr. Skirving's ground, near Liverpool, and as that gentleman was present he hoped he would favour the meeting with his opinion.

Mr. SKIRVING agreed with what had been said by Mr. Binns. The plants should be four years old, they should be planted upon a level, and plenty of manure at first should be applied; the farmer could not put the manure to a better purpose. There should be no ditch near them, at least no open ditch, for there was no need to lose so much land. By this means they need not be more than two feet thick, and would be better than a stone wall, for they would be well feathered at the bottom, and a rabbit could hardly get through them. The shears should never be used, but they should be switched upwards. The worst hedges in the country were those of Lancashire. Some of them occupied five or six yards in breadth, with their ditch and bank, and were not good fences after all.

Mr. JACKSON.—That is a landlord's question. Is the tenant expected to grub up old hedges? he can't be expected to do that.

The President drank to their next merry meeting, and retired amid the loud cheers of the company, over which he had so usefully presided.

J. Heathcote, Esq., the Member for Tiverton, is preparing a model of a steam plough, (for which he is the patentee,) constructed on a novel and ingenious principle. It is adapted for those situations in which, from the extent of ground desired to be brought into culti-

vation, or difficulties in the soil, the ploughs in present use would be found totally unserviceable. It will, it is understood, shortly be removed to London, there to be exhibited before the Society of Arts, and also to the inspection of several eminent individuals. The dimensions of the model, which is about ten feet in length, is understood to be about one-fourth the intended size of the machine.

AGRICULTURAL IMPLEMENTS. CAMBRIDGE MEETING.

SIR,—I have been anxiously waiting ever since the meeting at Cambridge for an account of the machinery and implements shown, and remarks thereon.

The immense number shown, and the small quantity of time that an inexperienced person could devote, "having travelled near 100 miles" to examine them, are in my opinion sufficient reasons for an account of them.

Of the several ploughs at work, and those shown not at work, some no doubt highly pleasing to the eye, and but little use in practice. The Kent turn-wrist ploughs struck me as very uncommon and good. I should like to see or hear of a trial, as to draught with them and some other ploughs on clay lands, and a reference to maker's names and addresses. I am informed there was shown an implement to dibble with and deposit seed at the same time. I did not see it, and am unable to get any further information respecting it.

I am under the necessity of appealing to you as a public journalist, or some of your readers, for further particulars; and any instructions that might be given to guide us in the choice of our machines and implements of superior merit. For at most agricultural meetings a display takes place, some of great merit no doubt, others again that are not worth a rush; so that if a farmer does not possess sufficient mechanical knowledge himself, if he purchases some new implement, it is ten to one that he gets laughed at, and empties his pocket at the same time. An account of the most approved and useful, by some practical and disinterested person, would confer a great benefit to working farmers, and those who do not want to fill their yards with useless lumber.

I am persuaded that there is more room for improvement in several of our implements than some people imagine, although much has been done these last few years, a great many of our best implements will be a long time before they get into common use. For instance, an advertisement of this or that machine—they are all the best, as they state. "Here we want the guide."—Why is this? The answer I collect from an admirable little book, called "Why and because."

Why do quacks succeed better than modest men?

Because they address themselves to the passions and credulity of the multitude, and by noisy pretensions make dupes of the unthinking majority.

Why is truth obstructed?

Because it is more popular to flatter prejudices than to oppose them.

Why do books in general sustain errors instead of truth?

Because those books sell best which support popular prejudices, and profit is the chief object of most writers and publishers.

I doubt I have trespassed on your pages, but believe me to remain a constant reader,

Yours, &c.,
A FARMER.

Lincolnshire.

TALLOW AND THE ANGLO-
RUSSIAN TRADE.TO THE MANUFACTURERS OF SOAP AND CANDLES
THROUGHOUT THE UNITED KINGDOM.

London, Oct. 17, 1840.

GENTLEMEN,—It is with a far greater degree of confidence, as most assuredly it is with infinitely more of pleasure, that I address this my third letter to you; for the predictions which I ventured upon as resulting from your conduct are approaching rapidly to fulfilment.

I congratulate you on the success which in this early stage of your contest has attended you. By the patience which you have manifested, and by your abstinence from the purchase of *Russian tallow*, the consumption has been most materially checked, and the confidence of the monopolists shaken. Since the 1st of June 9,000 casks less than the corresponding period of last year have been consumed; and those 9,000 casks are therefore added, as it were, to the importation of this season. The stock in London at present is larger than in any year since 1837, and exceeds even that year by 304 casks; and now, gentlemen, you who have, by unanimity of action, the control of the market, mark the anomaly that follows. In 1837, with but an indifferent home produce of any kind, and with a stock of 30,500 casks, the price of Russian Y. C. Tallow was 39s. 3d.; and in 1840, with a larger stock by 304 casks, with an abundant home supply, you are forced by a Russian league to pay 52s. 3d. for the same article, being an advance of 13l. per ton as a reward for successful monopoly.

But, gentlemen, can we blame these foreigners for asking the prices you are willing to pay them? You have created in the heart of the trading community of Great Britain the evil, because the silent but sure advances it has made have neither excited your fears or even attracted your attention. I trust to see yet among you a just appreciation of its danger.

And there is one point which, at this particular juncture, throws additional interest upon the subject I am discussing. I mean the *money market* and its condition. The unfavourable state of the exchanges has as you are well aware, obliged the directors of the Bank of England to curtail the circulation of the country, and the annoyance, difficulty, and loss attendant upon that measure, you will know and feel in common with all engaged in the trade.

Now it is but legitimate inquiry to see how far great monopolies, such as tallow, assist in raising or mitigating the financial disasters we labour under. The subject is interesting, as concerning most closely all who are dependent on business, or mercantile pursuits in any shape.

We hear constantly of the defects in our *corn laws*, and the inconveniences consequent on the importation of large parcels of foreign corn, for which, in spite of the beautiful *theory of reciprocity, gold and gold alone*, must be paid. How far such laws are defective or otherwise, I will not now stop to inquire; suffice it, that as from foreign nations we receive corn and pay money for it, so with *Russia* I may almost assert we pay for her produce, not with our manufactures, but by coin. If, therefore, on the 1st of January, the monopolists of tallow still hold up their price, and the trade continue firm in their refusal to pay the exaction, there will be in London and the country upwards of 100,000 casks of tallow, or property of the value of two millions sterling, warehoused and unavailable for the fresh creation of capital by its diffusion through the country. Apply the same reasoning to other articles of foreign produce for which we pay in money and money only, and it will appear that not only on a particular trade, but on the whole trading community, which is the *British empire*, these monopolies are destructive of prosperity, based upon injustice, and therefore fair objects of defeat wherever they can be encountered.

I annex the state of the markets during the last four

years, from which you may readily confirm my assertions, and with a renewal of my former counsel to you "to bide your time," I, for a short period take my leave, remaining respectfully, A MANUFACTURER.

TALLOW.

	1837.	1838.	1839.	1840.
Stock this day	30552	22634	18245	30856
Delivered last week ..	3529	4503	3151	2597
Ditto from June 1 ..	43320	37145	35008	26882
Arrived last week ..	4510	844	6418	10519
Ditto from June 1 ..	62586	50129	49040	42522
Price Y. C. Tallow ..	39s 3d	55s 3d	49s 6d	52s 3d
Ditto Town ditto ..	43s 0d	58s 6d	55s 6d	57s 0d

Oct. 12, 1840.

HEMP, FLAX, AND TALLOW.

Comparative Statement of the Stocks of HEMP, FLAX, and TALLOW, remaining on hand in the London Warehouses (the Dealers' Stocks included) on the 1st of Oct., with the total deliveries each year to the same date.

	1836	1837	1838	1839	1840	Deliv- ery in Sept.
Hemp, St. Petersburg. cin.	1486	2443	258	788	1080	283
— Riga & Do. outshot	507	796	61	401	389	137
— Half-clean & Pass.	546	1232	25	308	884	209
— Polish & Riga Rhine	230	512	115	487	608	174
— Codilla, Italian, &c.	203	86	52	427	259	23
— East India	54	2078	3752	5385	3503	532
Tons	3136	7747	4268	7776	6778	1406
Flax, St. Pet. 12 & 9 hds.	154	810	193	122	115	1
— Riga	308	167	633	601	646	98
— Other sorts	472	202	132	264	401	122
Tons	934	688	958	967	1163	221

Tallow	Casks	26067	30092	13701	11151	23674	10830
Price of Clean Hemp		1836	1837	1838	1839	1840	
Do. 12 head Flax		29 0	28 10	34 0	37 10	40 13	
Do. Y. C. Tallow		45 3	39 3	53 0	49 6	52	
Do. Town ditto ..		46 6	44 0	56 6	54 0	56 6	

THE BOKHARA CLOVER.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Is the inclosed, the *Melilotus dentata* of Decandole's *Prodromus* the same as Mr. Saul's Bokhara clover? It was received in 1835, with the name of *Melilotus Odorata*; some plants were cut five or six times, and the one left to go to seed grew to the height of above eight feet. Some horses ate of it greedily, others did not.

An answer will much oblige,

Oct. 28, 1840.

AN EXPERIMENTALIST.

[The enclosed specimen is not identical with Bokhara clover; we incline to think that our correspondent should, instead of "dentata," have written "macrorrhiza"—Large-rooted Hungarian, with yellow flowers, three feet high; "dentata" has dentated stipules, which the specimen has not. The Bokhara clover was obtained through Mr. Loudon, to whom it was sent direct from the country early last year. We have seen some beautiful specimens of the real Bokhara clover, grown by Mr. Taylor, of Stoke Ferry, Norfolk. It is impossible to mistake the plant sent by our correspondent for Bokhara clover, the plants being very dissimilar. The flower of that enclosed to us is yellow; the Bokhara has a white flower, and large made oval leaflets, but it is a *melilotus* and not a *trifolium*.—Ed. M. L. E.]

ON THE VALUE OF SCIENCE IN AGRICULTURE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—As improvement is the great object in every science, the ingenuity of man is constantly at work, in order to find out by experiment, some new invention better calculated to produce the desired effect; in this way the great and important improvements in the mechanical world have been accomplished. It has often occurred to me, that the same enterprising spirit is not so fully developed by those engaged in agricultural pursuits, and I speak advisedly, when I say that the great proportion of our farmers *stalk on* as if there were no improvement necessary, adhering to the old maxim, almost obsolete in regard to every thing else, *that what is, is right*. There has been no doubt within these last twenty years, a decided improvement has taken place in the cultivation of the soil, throughout the greater part of Britain; still there is a great deal to be done, which has never yet been attempted. In perusing your valuable Journal, I have often seen it suggested, that agricultural colleges and experimental farms should be established throughout the country, as a means of imparting that knowledge, which is necessary, in order to farm on scientific principles, and to good purpose; with these suggestions I altogether agree, feeling convinced that their adoption would confer a great boon to the country, and materially promote our agricultural prosperity. In every profession or science, he who has been at most pains to make himself thoroughly acquainted with all its principles and details, and leaves no stone unturned, whereby he may increase his information, is generally the person who ascends to the top of the scale in his profession, and in the same way we reasonably infer, that an intelligent man will make a better farmer, than he who depends for all his knowledges on what he has seen on his father's, or his neighbour's farm. It surely must be of great advantage to know the composition of the soil on which we are about to operate, in order to make that application which will render it most productive, at the smallest expense; every soil does not require to be treated in the same way, that which might improve the one, would deteriorate the other; hence the great advantage of agricultural chemistry. The application of the different kinds of manure, with many people is more a work of chance, than any right understanding about the effects to be produced upon the crop on which account it is applied. Bone-dust has for some time been extensively used as a manure, but how it operates with many it is matter of mystery; that it has been of advantage to the growth of the crop, they cannot deny; just in the same way with the other artificial manures, their good effects are seen, but how they act is not generally understood; any person at all acquainted with farming operations knows very well, that one kind of manure is more efficacious upon one soil, and another upon a different soil, so that to apply manure to the most advantage, we would require to know the composition of the soil, and the properties of the manure to be applied. I would consider it to be the first and main object in an agricultural school, to make the pupil thoroughly understand the principles of the science in which he is about to engage,—I call it a science, for, to be a good farmer requires more scientific knowledge than is generally admitted. Some people imagine that farming is so simple a matter, that the *veriest blockhead* might be a good farmer; this I altogether deny. No doubt they could give orders to plough, and sow, and reap, and follow other people's example in the general management; but, to be a good farmer, there is a great deal more needed than all these. We look forward with pleasing anticipations, to the time when our young men shall come out from these institutions, and show to the world, that as much benefit is to be attained by studying the principles of agriculture, as attending to any other science. A word or two in favour of an experimental farm, and I have done. That the lectures in the classroom may be properly understood, they should be ac-

companied by experiments which will tend to fix the subject on the memory. There appear to me so many advantages in the establishment of an experimental farm, that to enter into their detail, would extend my letter far beyond what I intended, and I fear be trespassing upon your columns. Let me make the supposition, that an extensive farm, composed of different kinds of soils, was set apart for this purpose; and to superintend the operations, there was selected, one or more persons of good education and thorough experience, whose instructions were to try every means, keep a correct statement, and report the most advantageous way of treating the different soils, as to the most suitable crops to be grown upon each, and the system which would be most profitable for the tenant, without injuring the interests of the landlord. Much might be done, in testing the superiority of one kind of grain over another, on the same soil; great advantage might also be gained by experimenting on the effects of different kinds of manures, the breeding and feeding of stock, &c., &c. That the result of their experiments might be widely circulated, they should be published in all the agricultural Journals throughout the country. It lies with the two great Agricultural Societies of England and Scotland, to take a prominent part in this great work. Landlord and tenant should come forward with hand and heart, and give a helping hand. It is for the interest of both. It will no doubt be thought presumptuous in a young farmer in an isolated corner of Scotland, to give a hint to the agriculturists of Britain; but, even at the risk of this, I have penned the foregoing lucubration, which, should you think worthy of a place in your columns, is at your disposal.

I am, &c.,

A.C.

Wigtonshire, Nov. 10, 1840.

NEW METHOD OF RESOLVING CERTAIN ARITHMETICAL PROBLEMS.

M. Luchessini has proposed to the French Academy of Sciences a plan which he calls a new one—and for which the Academy have voted him their thanks—to solve arithmetical problems usually resolved by the Rule of Three, Allegation, Permutation, &c., and afterwards to problems generally resolvable by simple equations in algebra. His method is described to consist in reducing all arithmetical questions to the formation of three terms of a proportion, of which the fourth is the unknown. In order that it may be understood in a few words, the commissioners give from the author the following problem solved by his method.

Prob. Four labourers, working 6 hours a day, can grub, in 5 days, 15 acres of land; in how many days, working 8 hours a day, can 12 men grub 240 acres?

The number of acres grubbed increases with the number of acres, and diminishes with the number of labourers and hours of work.

The 1st term, then, upon which the unknown depends is

240

is the fraction — which has for its numerator the num-

96

ber of acres, and for its denominator the product $12 \times 8 = 96$, that of the workmen and hours.

The 2nd term is formed in the same manner as the 1st,

15

to which it is homogeneous, and has for its value —.

24

The 3rd term is the given 5 days, and is homogeneous to the unknown.

120

The ratio of the two last is — which, multiplied by

15

the first, gives 20 for the answer sought.

The determination of the unknown, says the report, is reduced definitively to the multiplication of two numbers which the author teaches thus to form separately by a uniform process.

Thus this process is lauded by the commissioners as leading to happy results, but we confess we can see little or nothing in it.

ON SCOUR IN LAMBS.

SIR,—One of your subscribers at Ludlow wishes to know how to treat lambs when scouring. If he will be so good as to give his lambs bran or pollard, say four handfuls of salt to each bushel twice a day, he will find a most beneficial remedy, if they are not too far gone. Oats would answer the same purpose with salt. I have known this remedy save a number of sheep; and give your sheep salt in a trough all winter when on turnips, &c., you will find them healthy; there were sheep one year and a half old showed at the Northumberland Society on Thursday last, betwixt forty and fifty pound a quarter, had salt at their own liking taken all last winter.

Northumberland.

LESBURY.

SIR,—Allow me, through the medium of your columns, to reply to your correspondent of the 24th ult., and by way of preface to say I have had my own lambs so affected with the scour for the last three years, and which happened just before the time I have been accustomed to wean them (the first week in June). I have no doubt, as regards my own, it was brought on by their being too long on the same pasture, and receiving a check to their thriving in consequence. Now, as a preventive is better than a cure, I would in such case advise weaning early, and never allow them to have any sort of a check whatever; and if a few of your lambs become affected before you wean, or at any subsequent time after, turn them immediately on latter-math cinque-foil, as the very best pasture for lambs so affected; but if it happens you do not have any, put them on a lair that is fresh and has not had sheep depastured on lately. As to an application by way of physic a preparation of laudanum is best, but I am not an advocate for medicines for sheep (as medicines in almost all cases fail); my plan, as regards sheep as well as all kinds of stock, is to look to a preventive to disease, which is ten times better than a cure, and I think the scour in lambs may be prevented in a great measure and almost entirely if you keep the animal in one continued thriving state, but if you do not, disease of some sort will inevitably ensue; whereas on the contrary if you let them have fresh pastures and keep them moderately thin, they will be all right; that is the plan I adopt, and have found it answer. The first year my lambs became affected I lost a great many, the second very much less, and last year only three or four, and I attribute it to the aforesaid management, and not to the giving of medicine.

If these hints may be of any use to your Ludlow correspondent, I shall be most happy to have been an instrument in communicating them on this occasion, and beg leave to subscribe myself a brother farmer, as well as a practical one, and I am, Mr. Editor, your very constant reader for these last 20 years.

THOS. BAGNALL.

Westwell, Oxon.

N.B. White clover when young is very prejudicial to scour, but not when old.

GATEFORD ANNUAL PLOUGHING MATCHES.—A numerous and highly respectable meeting of the patrons, friends, and promoters of the agricultural interest, which necessarily involves that of the agricultural labourer, was held at Gateford on Tuesday se'night, to patronize and superintend the

operations of and the rewards to the competitors in the rustic strife above announced; and, notwithstanding the unpropitious state of the weather, which, though wet enough, could not damp the ardour of either masters or men, it would be difficult in ordinary terms to describe the spirited and admirable arrangements which, through the praiseworthy exertions of Henry Machin, Esq. and the Messrs. Edison, were adopted to promote, encourage, and reward that meritorious emulation among the peasantry of the neighbourhood, which renders each return of these anniversaries one of those days of joy and festivity to them, which, as was truly observed by a rev. gentleman at the dinner, are to the rustic few and far between. These useful meetings, being in a way auxiliary to the general agricultural exhibitions, also afford convenient opportunities to the discussion and suggestion of every variety of improvement and discovery among the scientific occupiers, which must have a tendency to facilitate the most healthy culture of the soil, without which the earth would in degree fail to yield her increase. The order and regularity with which all the proceedings of the day were conducted, including the distribution of the prizes (which in the more meritorious instances were accompanied with the addition of Mr. Machin's beautiful silver medal, set in a neat case), were such as to merit the highest praise. A most excellent dinner, provided by Mrs. Bargh, of the Plough Inn, was served up to upwards of forty gentlemen, in a malt chamber belonging to Mr. Machin; the chair being most ably filled by that gentleman; Henry Edison, Esq. very efficiently discharging the duties of the vice-chair. Many appropriate and excellent sentiments addressed both from the chairman and from several talented gentlemen visitors, imparted delightful interest to the dinner table, and the well-adopted admonitory—much indeed like paternal—addresses from the chairman to each successful ploughman on presenting the prizes individually, cannot be too highly applauded. The addresses from E. W. Wilmot, Esq. steward to his Grace the Duke of Newcastle, who propounded a plan for the institution of a society, to be called "the Labourer's Friend Society", were in good taste, and urged with pathos and animation, and must ensure for that gentleman a conviction, in all who heard him, of his disposition to carry out every beneficent plan for the good of the cultivator of every class which his sagacity may devise, and his important station empower him to effect.—*Doncaster Gazette.*

BIRCHWOOD PARK PLOUGHING MATCH.

—The noble owner and occupier of this farm, Earl Talbot, having offered various prizes to meritorious ploughmen, the match came off on Thursday, the 29th ult.; nineteen teams, some abreast and some alength, entered the field. Half an acre for each team was the quantity to be ploughed: and nine inches wide by six inches deep, was the prescribed size of the furrow. The ploughing of William Cliff, with a pair of horses abreast, servant to Mr. Meakin, of the Heron Wood Farm, in the parish of Draycot, was spoken of by all the spectators, as being as well executed as any in the field; and though he did not obtain a prize, the noble lord, entertaining the same opinion, with many others, as to the merit of Cliff's work, has since sent his bailiff, Mr. Craven over to Mr. Meakin's, and presented his wagoner with a handsome present. The judges of the match were Mr. Bradock, of Hixon; Mr. Smith of Amerton; and Mr. Shelley, of the Beacon farm.

PHYSIOLOGICAL BOTANY.—There cannot be a more delicate or beautiful study for ladies than that of botany. Ladies resident in the vicinity of Maidenhead, who may be desirous of prosecuting this interesting study, possess superior advantages in having it in their power to avail themselves of the instruction of Miss Towers, daughter of Mr. Towers, whose writings on Horticulture and Gardening are well known. We understand Miss Towers also attends pupils in London twice a week.

INSTITUTIONS FOR THE PROVIDENT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In the belief that an acceptable service may be rendered to society by the promulgation of such reflections as have the prevention of indigence and insolvency for their object, I resume my pen to advert to another important illustration of the principles of life insurance, in the opportunity afforded to persons of limited means to provide a certain income for their wives in the event of death, and to endow or secure to a child a certain sum on attaining a given age.

The considerate provision against an event which may protect the widowed days of a faithful and affectionate partner from the abasement of eleemosynary aid, is perhaps the most grateful requital that can be offered for a long enjoyment of conjugal happiness; and when such provision is attainable by periodical payments of such trifling amount as those I find set forth in the explanatory tables of the Farmers' Life Institution, there are few, however circumscribed their ability, that may not be said to have this benevolent intention entirely at their command. The reflection of leaving a wife bereaved of those comforts to which a long participation of wedded life had accustomed her, has brought down heaviness upon many a well-disposed heart, which might have been spared its painful solicitude had the principles of life insurance found a friendly expositor. An annuity of £40, £50, or £60, inherited by the widow of a man connected with agricultural pursuits, it is scarcely necessary to say, would be an income that would command conveniences and domestic enjoyments unattainable by those who dwell in large towns. But if we contemplate this interesting subject in a more enlarged point of view, there will be found abundant occasions in which life insurances may be adopted with infinite advantage, and by means of which, family provision—protection against contingencies, and integrity of principle, may be severally and satisfactorily carried out. What, for example, can manifest so wise an exercise of parental benevolence, as the investment of economical accumulations during the nonage of our progeny, which, after a series of years, are converted into a sum capable of laying the foundation of their after-success in life. The biographical annals of our country furnish innumerable instances of the prosperous career of men who "began the world" with a few score pounds merely, but who, having worked their little capital with untiring energy, closed a long and exemplary life as the benefactors of their species, by appropriating their acquisitions to the endowment of charitable edifices, the advancement of science, and the furtherance of those pursuits by which they themselves had thriven.

I may be excused, perhaps, for introducing—as bearing out this view of the subject—the following apposite remarks, which occur in one of the chapters of an excellent and popular little treatise on the *Rights of Industry*, published some ten years ago, wherein the writer justly observes, that "One of the most advantageous modes in which accumulation goes forward, under the laws which enable a man to dispose of his property at his death, is that of insurance upon lives. By this admirable invention, founded upon the most complete security, a man abridges some portion of his annual expenditure for the purpose of accumulating a fund that will secure to his widow and children a continuance, in some

degree, of the comforts which his industry produces, after that industry is swallowed up in the quiet of the grave. 'The married man hath given hostages to fortune;' and this is one of the ways in which a prudent, a just, and an affectionate husband and father redeems those pledges. He knows the casualties of life—he knows how soon his power of bestowing daily comforts upon his household may be ended. He forgoes, therefore, some luxuries which might be useless, or even worse than useless, to make provision for the decent maintenance of that household when he is removed. His providence extends beyond his own life. It equalizes his own expenditure with that of those who are to come after him;—it dreads an abrupt transition from lavishness to meanness, from abundance to want, from finery to filth; it dispenses with 'drink and plays,' well knowing that 'the property which remains after this drink and play' will be very small. In a word, his providence makes him happier in his industry, and smoothes the passage to eternity by the consciousness that the blessings of his industry shall not perish with him."

It would be difficult to furnish a more faithful picture of the advantages resulting from prudential habits than that which I have cited. There are, nevertheless, other cases in which family interests are intimately concerned, and in which the wisdom and expediency of seeking security in insurance will be no less strikingly apparent. To the possessors of entailed estates, where a numerous family is entirely dependent on the frugalities and discretion of the parent, the principle of life insurance may be said to be invaluable, in the benefits it offers as a future provision for those who have been bred in affluence and "fared sumptuously every day." Members of the clerical profession, particularly the "working" clergy, who have generally the anxieties of a large family, are, it is well known, among the foremost in seeking this mode of protecting their offspring from the ills that await unlegacied orphans. By the way, I have often thought that an occasional discourse from the pulpit would have a more stimulating influence in urging men to the performance of this necessary duty, than all the modes usually resorted to. But to no class of society does this branch of the subject address itself with more encumbent earnestness than those heads of families who are in the enjoyment of what are usually denominated "fixed incomes,"—men whose station obliges them to sustain a certain position in the world, and the maintenance of which too often precludes them, *except by insurance*, from leaving anything in the shape of substantial assistance to their children. I happen to know, within my own circle, of several instances where the absence of this forethought has been attended with the most direful consequences to the survivors; and I happen also to know of very many cases—in two of which I can speak as an executor—where the prudence of the parents has assuaged the bitterness of mortality in the liberal provision which the testators had secured to their descendants by means of life insurance.

There is also one other class to which I would respectfully appeal in support of the principle for which I am contending. I allude to the man who has incurred a debt of some consideration which ill success in business or unforeseen events prevent him from discharging, but which his prospects will enable him to satisfy at a future period. Now what resource in the way of arrangement is so available, or exhibits personal integrity so conspicuously, as that which enables such a debtor to effect an insurance upon his life and deposit the policy with his

creditor? To put a case of another complexion: a man has a pressing necessity for a certain sum, the immediate possession of which will secure him results that may prove of the highest importance to his worldly prospects; a prudent friend is willing to accommodate him, but naturally asks for "security." "I have a policy of life insurance (replies the other) for a much larger sum than that I need, the premium on which has been regularly paid." "Enough (rejoins the friend), deposit the document with me and you shall have the needful." Now this last is a case which is constantly occurring in the intercourse of busy life, and therefore cannot be too forcibly impressed upon men in general, but more especially upon those who are often heard to denounce life insurance, because, forsooth, being unmarried and having none but distant kindred, thoughtlessly contend that "the thing is unnecessary." If less than forty shillings annually paid to a life office will obtain a policy worth £100, which every year will become more valuable, and which, at some necessitous moment, may prove to its possessor "a friend in need;"—where, I ask, is the man so fatuitous, who upon reflection will not admit, that in such annual appropriation he makes not only a safe, but a wise and profitable investment?

But here, for the present, I conclude.

Norfolk, Nov. 13.

FRUGALITAS.

ON THE HOOVE.

SIR,—An error having found its way into your excellent periodical of last month, I feel anxious to correct it; no doubt it arose from a cursory view taken by your printer, the two words "hoose" and "hoove" being widely different. Hoose is a cough in calves, arising from worms in the windpipe; hoove is an inflation, with an impervious egress of air or gas from the rumen of cattle, evolved from the fermentation of its contents; instead therefore of heading the article "On Spontaneous Hoove in Cattle, by the Professor Gells of Toulouse," it should have been "Hoove." I perceive it is correctly done so in the Veterinarian from which it is taken. Your widely circulated journal being devoted to the welfare of the farmer, I beg to offer a few remarks on the French Professor's method of procedure in this spontaneous and sometimes instantaneous disorder of the rumen, or first receptacle for food in ruminants, or animals that chew their food over again, called rumination, or chewing the cud. In mild cases the Professor says walking the animal about will do good, and so it will in more violent cases, provided the inlet and outlet of the rumen is not closed, so as to prevent the imprisoned air within its parietes to escape either through the œsophagus or gullet in the form of eructation, or per anum by wind, which is nature's own effort to cure or relieve herself. Now in the acute hoove, the administration of a few ounces of æther, or ammonia, or aromatic water which the Professor extols, is not energetic enough in its action, neither is it always at hand; in short, it is too characteristic of the French method of practice, and too vaporizable to be carried into effect. Should cattle by accident break, or be inadvertently turned into a piece of fresh or young vetches, or after grass or clover, or lucerne while wet with dew, hoar-frosts, or showers, acute hoove would be the result in some of them. The rumen or first stomach would be rapidly inflated with gases of an heterogeneous character, requiring quick and prompt relief by either the flexible tube, or puncturing the

stomach with a trocar, not the giving of a little æther or aromatic water; it would be next to an impossibility for it to enter the stomach when the animal is ready to fall from status; at the best of times it is difficult and uncertain to ensure the entrance of fluids into the rumen of cattle. I should say, with due deference to the Professor, that on a farmer going into his fields where cattle are depasturing, and perceiving one or two blown and ready to drop from inflation of the stomach, the speediest and best plan would be, to avert impending danger, at once to introduce his sheep's foot knife into the paunch, and let loose the confined gas or air; if time can be spared, introduce the flexible tube or trocar. The flexible tube, or probang, is a safe instrument; readily allows the air or gas to escape from its confinement when fairly introduced into the stomach. The Professor must certainly make a great error when he says, it is a dangerous instrument; there is no danger in introducing it if only common care is observed. The only danger in its use, is when a foreign body is lodged in or impacted in the gullet or throat, but when there is nothing in the œsophagus to obstruct its passage, any one ignorant of the structure of the parts can pass it on into the rumen. The French pathologist is also adverse to the use of the trocar, but as Mr. Youatt justly remarks, he cannot divine for what reason the trocar with its canula is an useful instrument for puncturing the rumen of cattle, and I may say that the conjoined use of the probang and trocar has been the means of saving thousands of head of cattle. There is also another method of relieving acute hoove in cattle: it is simple, but of real value—not in its component parts, but in its mechanical operation; with ease to be procured at the farm, if no tube or trocar is at hand. Make three or four pellets of lard, salt, and flour, into a firm consistence about the size of an egg, give them to the animal one after another quickly; it will frequently break through the floor of the œsophagean canal, and make an opening into the stomach, let loose the confined air, with sudden relief to the beast. The phantasms of the Gallic Professor may do to be disseminated amongst his own kindred, but they are by far too meteorized, contain too much æther and carminative water, for John Bull. I again assert from practice, that in all cases of acute hoove arising from mephitic gases evolved from the injecta of the stomach, nothing can enter it in the form of liquids; in fact, its apertures for ingress and egress are hermetically sealed, from distension and pressure of its sides on the surrounding organs; manual effort either with the probang or trocar will be your safeguard, so rapidly does the rumen contract on its contents. I have seen fluids ejected with force to the distance of several feet through the flexible tube, and relief in a moment obtained. Now, as to medicaments in acute hoove, should they by chance enter the stomach, I do not see how good can be derived from the administration of such small doses of æther, or ammonia, or aromatic water; their proportions are too minute to neutralize or absorb the quantity of mephitic air the rumen is capable of holding should they enter the stomach the generating gases produced from the heat and humectation, would be more than an equivalent for that destroyed or neutralized. The vaporizable bodies before named, should they enter the stomach, and its entrance be closed on them, it must still add to its further inflation. There is as yet no direct proof of any agent capable of diminishing the bulk of gases of an heterogeneous kind, but only of an homogeneous quality: for instance, by only putting a little æther into a bladder, close its neck, put it in a warm place,

distension will soon take place. This is to illustrate, that diffusible substances must tend to aggravate, rather than relieve, if they do not lessen by neutralization the bulk of contained air; if the gas given off from the contents of the stomach was uncombined, a chemical agent would do good if its entrance was certain. In the acute hoove nothing must fall short of prompt measures, by first of all letting out the pent-up air or gas, by which you will prevent apoplexy, suffocation, or pulmonary congestion; 2nd, by bleeding, to relieve the parts—the distended blood vessels; 3dly, by purgatives, to clear out the alimentary canal.

In the subacute hoove, either as a sequel of the acute or primary in its origin, aromatics and stimulants will do good, but must be given in a solid state, that they may enter the torpid rumen, and rouse its atony; laxatives will also be required to clear the bowels, given in large potations of gruel. I hope I have not too long trespassed on your valuable journal; my only object is to do away with any thing that may tend to mislead rather than instruct, for the good and benefit of the British farmer,

Crediton, Devon.

R. READ, V. S.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir,—Having just read Mr. Price's letter in your paper of yesterday, and as he states his bad health, I should not have noticed it at present, but for one sentiment he has expressed with such confidence, that it might pass as an *undoubted truth*, if not contradicted. The expression is this—"I could have stated to Mr. Bates, why, on the true principles of breeding, this was certain to be the result."

Now the very letter in your paper before that of Mr. Price's, signed "Agrestis," is in flat contradiction to Mr. Price's assertion, in regard to a whole district of country, Aberdeenshire, having changed their breed by crossing the native (small) breed with short-horned bulls, and after twenty years' experience being convinced of the propriety thereof, from the greater profit the tenant farmers had obtained, although discouraged in so doing by the Highland Society and the landed proprietors.

It is nearly fifty years since I saw in Darlington market, on the first Monday in March, Mr. Charge (father to the late Mrs. Wright of Cleasby) show an excellent pure short-horned steer, three years old, and also a steer of the same age, by the same short-horned bull, out of a pure West Highland Heifer (Kyloes). He put a price on each, but would not sell them together. They stood for some time, and he had many customers, and took the ones that offered the most, and they were sold separately for nearly the same money, and when sold, Mr. Charge said "Can any man doubt which has been the most profitable, for the two steers," he said, "had gone together, and been treated alike from calves, and the dam of the half-Highlander," he said, "was not one-third of the weight of the dam of the short-horned steer." Now this Mr. Charge, when living, was looked up to as a very superior man in his day, as one of the best of judges of cattle. He had repeatedly visited Mr. Bakewell, even before 1760; and amongst many other remarks Mr. Charge made, he stated that Mr. Bakewell's opinion was "that from the West Highland Heifer the best breed of cattle might be produced."

I commenced breeding from West Highland Heifers, (Kyloes) above forty years ago, and kept at one time nearly 100 breeding cows of the cross between the Mearns, Collings short-horned bulls, and the West Highland Heifers, and continued so to breed for nearly thirty years.

At present I have not any stock so bred, and whenever Mr. Price's health admits of it, if he will state

why, on the true principles of breeding, it is wrong to breed from a large male and a small female, I am ready to meet him, and prove the contrary by incontrovertible facts.

I shall not notice any other part of Mr. Price's letter at present, as he states that his health will not admit of controversy.

Your insertion of this letter in your next paper will oblige,

Your humble Servant,

THOMAS BATES.

Kirkleavington, near Yarm, Yorkshire.

Nov. 10th.

BROAD CAST & DRILL SOWING.

Our agricultural readers may remember that in a recent number we alluded to the practice of sowing wheat in drills instead of the usual method, as a change calculated to accomplish a saving in seed and to produce a superior crop. In some parts of England the wheat-seed is dibbled in drills; but Sir Francis Mackenzie, who has tried both schemes, does not think that "dibbling" or "planting" wheat is applicable to Ross-shire soil, while he highly approves of drill-sowing. From the following letter, which we have received from an intelligent agriculturist, it will be noticed that drill-sowing has been practised by him with complete success. In this instance, it has been applied to oat and barley sowing; for although our correspondent does not mention this circumstance, yet we infer from his communication that he has put down all his grain crops in this manner, and we do not think that he grows wheat.

Sir,—Your attention to everything connected with the improvement of agriculture induces me to send you the following remarks, in hopes that, if you think them worthy of a place in your valuable columns, they may be the means of inducing some of your agricultural readers to try the experiment:—"One happy result which can generally improve the method of cultivation is worth the labour of a whole life, and an unsuccessful experiment, well observed, must establish some truth or tend to remove some prejudice."

In many situations, a great quantity of grain is lost annually by the usual method of sowing and harrowing. Some seeds are put too deep in the ground, and never spring up; some are left uncovered, and although they may take root, yet they afterwards die, or produce very little; others are but slightly covered, and if drought set in during the month of May, which is often the case, much of the seed in these circumstances will die; others languish till more favourable weather appears, and revive, but do not ripen along with the plants from the seed which has a sufficient depth in the ground.

To remedy these evils, two years ago, I constructed a very simple machine on the same principle as the turnip-sowing machine. It deposits the seed in rows eight inches apart, and two or two and a half deep. The depth can be varied as may be thought proper. The land requires to be well dressed previous to the application of the machine. I find that three-fourths of the usual quantity of seed is sufficient and the field ripens more equally. Another advantage of the machine is, that in poor soil bone-dust can be deposited along with the seed, a stimulant which I find, by a partial experiment I made this year, may be used with great advantage. I regret that I have not been so particular in noticing the quantities of seed and the produce as to be able to state precisely the result of the experiments; but I am satisfied that this subject is well worthy the attention of agriculturists.

A DONSIDE FARMER.

The advantages derived by our correspondent from this change are—1st, Economy in seed, which, if amounting to one-fourth, would, over the entire kingdom, add greatly to our stock of food, and save

a considerable sum of money to individual farmers; 2d, Greater security that the seed put down will germinate; 3d, Facility in applying manures, and economy in their use, for most farmers are aware that there are several composts which may be used much in the same manner as bone dust, now offered to the agriculturist; and 4th, Greater regularity in the growth and ripening of the plant. We need not say that the last is most probably the greatest advantage, for there are few things of higher importance to the farmer than that the stalks on a field should come uniformly to maturity; and very frequently he is compelled to cut one portion too green, or leave another over-ripened, and liable on every blast to very heavy loss. We trust very soon to find this more careful and scientific mode of farming, in this department, substituted in every quarter of the country for the present clumsy and losing practice.—*Aberdeen Banner.*

REVIEW.

ILLUSTRATIONS OF THE BREEDS OF DOMESTIC ANIMALS OF THE BRITISH ISLANDS.

By DAVID LOW, Esq., F.R.S.E., Professor of Agriculture at Edinburgh, &c., &c.

The fifth part of the above work has appeared, containing a description and coloured lithograph prints of the Kerry breed of sheep, the black-faced heath breed, the Egmoor breed, and the Cheviot breed, being confined to the four mountain breeds now mentioned. The first breed is valued solely for home consumption, from the flavour and juiciness of the mutton; but this property will not ensure the propagation, as it is much over-balanced by the slow feeding, and the coarse hairy quality of the wool. The retention of such a breed, when so many superior ones are known, is always a convincing proof of the condition of a people, for cultivated minds naturally desire cultivated objects of any kind, and grossness of intellect will always evince its grossness in the choice. The author makes a few remarks on the state of Ireland—the common one, and many hundred times told, and we think the remedy is as easily seen, for it may be supposed that evils produced by human agency, are removable by the same power. But this subject is foreign to our notice.

The breeds next mentioned is the Dartmoor and Exmoor, the mutton of which, like all animals of small size, is so much valued in the London markets. It seems they are fast disappearing from the pure state, as the one quality of fine mutton cannot contend against other breeds which combine more properties, and are consequently more valuable. It is rather to be regretted that the author's research had not led to a portrait and description of the indigenous white-faced breed yet found pure on Charnley Forest, near Loughborough, in Leicestershire, as it is very generally concluded that Bakewell obtained from the female of that breed the maternal origin of the New Leicester sheep, from crossing with the Lincolnshire ram. The mutton of that breed is delicious, the wool is short and fine, and fetches the highest price, and at the age of 3 years, the weight of 18 and 20 lbs. per quarter is reached, and personal experience enables us to say that no breed that has come under our knowledge pays better for a twelve-month's keep. The males are horned, the females not always so, and the breed are invariably white, without any mixture. Fineness of bone and compact symmetry of form are easily visible to the discerning eye. This breed would have afforded a choice illustration of the improvements of art on the works of nature, and we are surprised the learned author has neglected, if he knew, an instance so very appropriate.

The black-faced heath breed has been long known on the hills in the North of England, and over the

whole of Scotland, somewhat diversified by physical circumstances. The mutton is excellent when well-fed, and is much esteemed for the black venison-like appearance; while more delicate judges of eatables prefer the Welsh and Southdown mutton. The wool is coarse, and the value of the breed is chiefly confined to latitudes where heaths are only produced and where grasses fail, as the Cheviot breed has now supplanted them in the lower Alpine situations. Crosses with the Southdown and Leicester breeds have been tried, but except where occasions offer for disposing of the produce, no real benefit has been derived, as the offspring must go to a more fruitful climate for maturation. Locality must direct such trials.

The Cheviot breed are the last mentioned in this part of the illustrations. This is one of the most important breeds in our island, being adapted to the richest lands, and extending over the elevated parts of the kingdom to the comparatively small extents still occupied by the black-faced. Wherever grasses grow, this breed is appropriate, and has been found to withstand a very rigorous climate. The wool is fine and close, and equals in value the improved wools. A cross with the Leicester produces a most useful feeding animal, but an infusion of stranger blood would debilitate the parent stock. Such trials require the means of rearing them. The author's description of the value and management of this breed is very interesting; the prints are beautiful, and the whole work is alike valuable to the practical man and the amateur. We have much pleasure in giving our cordial assent to the author's observations, that great improvements may be effected in the native breeds without any foreign blood, by choosing the best formed animals for propagation, and by better support in feeding and shelter. On this head great neglect prevails over the whole kingdom; superiority in habit and appearance is wholly overlooked by the careless farmer, and any animal of least value is generally reserved for breeding. By careful selection, any breed may be improved, and become more valuable in many respects than a mixture of many and discordant alliances. It is singular that this fact, so obvious and so useful, should meet with so little attention.

WEAVERHAM FARMING CLUB.—A society under the above name having been formed in the parish of Weaverham during the year, for the purpose of encouraging agricultural enterprise among the farmers, and orderly and industrious habits among the labourers of the neighbourhood, the first annual meeting was held at the Gate Inn, on Thursday the 29th Oct., which was numerously and respectfully attended, Geo. Wilbraham, Esq., M.P. kindly acting as President. The stock exhibited by the members was of superior quality, and in greater quantity than the locality seemed to promise. The roots, turnips, and mangel wurzel, were very fine, and the whole exhibition gave great satisfaction. After dinner the Chairman distributed the prizes awarded to the successful competitors, and several subjects of agricultural interest were discussed by the members, and a general opinion prevailed that much good had already been effected, and many improvements adopted since the institution of the society.

WRENTHAM FARMERS' CLUB.—The Annual Show of Roots of this Club took place on Friday, the 6th Nov., and was considered a very good one for the season. Mr. Larke exhibited some very fine specimens of the Ram's Horn, as did also Mr. Crowfoot, of the Yellow Beet. The show of Swedes was particularly good; those shown by Mr. L. O. Cottingham, of the Liverpool or Skirvin's stock, carrying the Sweepstakes both for size and quality. There were also some common turnips, of very large dimensions, and good quality, which were much admired. The following are the awards of the Judges:—For the best field of Common Beet, Mr. L. O. Cottingham; do. of Yellow Beet, Mr. John Crowfoot; do. of Swedes from manure, Mr. L. O. Cottingham.

MANGEL WURZEL.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In answer to the questions of "A Constant Reader," on the preservation of mangel wurzel during the winter, I beg to inform him that the proper time for drawing is from the beginning to the middle of November; but the work should not be performed during frosty weather.

The best method to preserve the roots during the winter is to build them into stacks 2½ feet wide and 6 feet high, facing the outsides with the largest roots, and mixing the whole with a quantity of sand, then thatch them over with straw to resist the frost; the stacks may be built either under cover or out of doors.

The tops should be cut off, but the roots should not be cut nor trimmed at all, until taken from the stacks for use, as the fibres retain the moisture and preserve the nutritious quality of this valuable winter food. Wm. Hislop.

Woolley Park Farm, Nov. 9, 1840.

MR. EDITOR,—In answer to the Queries propounded in the last *Mark Lane Express*, by "A Constant Reader," relative to this truly invaluable root, I give you the results of five years' experience.

1st, The dryer the weather the better for drawing; if the tops have not been previously cut for food, the root will stand a considerable degree of frost without the tops; a sharp frost materially damages the root, and renders the storing dangerous.

2nd, Against a wall, say seven or eight feet high, the roots gradually being sloped down in the form of a roof, and thatched in a row, the sides being defended by hurdles wattled with straw, taking care that the width of the stack shall not exceed nine or ten feet in breadth; if very much larger, there is danger of the centre heating and spoiling.

3rdly, The plant should be taken up as perfect as possible; no part of the root should be taken off, and especial care should be taken that in separating the top from the root, the latter is not wounded. From the wet state of the ground occasionally much earth will adhere to the roots, but I have never found that this has hastened in any way decomposition in the stack.

From your obedient servant,
LIVE AND LEARN.

SIR,—The general complaints of mangel wurzel and turnips running to seed, is in some degree from over-vegetation this season. If your enquiring correspondent Algernon Capel, R. N., will sow seed two year old, his roots will bulb better and not run. I would recommend steeping the former three or four days, the latter a few hours, and not sowing until vegetation commences, as it will, by leaving the seeds together in a moist state; this insures quick growth, large roots, and a full crop. Every experienced gardener knows if he sows new cabbage seeds, his plants will run in the spring. As a subscriber to the *Express*, have had much information in perusing its valuable columns.

I am, Sir, your obedient servant,

WM. ABRAHAM,

Limerick, Nov. 4. Nursery and Seedsman.

A late acquaintance of mine sowed mangel wurzel in this neighbourhood a few years ago which ran to seed; he had some seed left which he sowed the following year, and proved a good crop without running. I was particularly struck with the circumstance; the seed was bought from me. W. A.

CHELMSFORD AGRICULTURAL SOCIETY.

At the late meeting of this society at Rochford, the Rev. C. B. MARRIOTT said, on these occasions they met to discuss how best the fields might be filled with verdure and food provided for the prince and the peasant—his object was to ask if there were any gentlemen present who had had practical experience in the working of what were called Farmers' Clubs. They would recollect that some sensible observations were made by Mr. Beadel at their last meeting at Chelmsford: and it occurred to him (Mr. M.) that it might be possible to establish a small Society of that kind in the small parish in which he resided. If they could meet at seven o'clock and break up at nine, and take in the *Farmer's Magazine*, and give out at one meeting a subject for discussion at the next, it might do good. There were various subjects which they could discuss. There were interesting facts relating to liquid manure which produced the beautiful crops of clover in Belgium. They there sunk wells for it, which held about 1000 barrels of urine, and it was steeped with rape-cake, from 800 to 1000 cakes of 2½lb. each to the 1000 barrels, and it was then carried upon the land, and it produced those beautiful crops of clover. This manure was making its way in this country. These matters might be discussed at their meetings, and be thought it would tend to break down the difference that existed between the reading man and the practical man, for there might be many things the reading man could tell them, and there were hundreds the practical man could tell him. For instance, the succession of crops: they know that a crop of the same kind would not grow so well, but they might not know the cause: yet it was found that a plant after drawing the nourishment from the ground threw out a kind of excrement, and no plant could draw support from its own excrement, but change the plant, and to that it became manure. A chemist put a bean in some water in a bottle, and it grew and threw out a yellow fluid: another bean which was put into the same water dwindled, but on a wheat kernel being put in it absorbed the yellow fluid, and flourished; and they all knew that wheat did well after beans. (*Cheers.*)

Mr. G. WOOD said, as a horticulturist he had tried manure in different shapes; and he had heard what Mr. Marriott had said of liquid manure, but he had seen it applied to pastures, when it was a great mistake to apply it in its crude state; if applied in that state in Belgium, it would never produce those fine crops of clover. But whether the tenant or the landlord was to get the benefit of it, it did not matter to him (Mr. W.)—he wished to introduce the article that men might make use of it: their efforts ought to be directed to getting the best workmen and the best articles to go to work with: and they would then get rid of all those prejudices. (*Cheers.*)

Mr. MARRIOTT said, he ought to have stated that the cisterns for holding the liquid manure in Belgium had valves; they filled one, the valve then closed and they filled another, thus going on till they filled half a dozen to the top, and the bottom one remained some time before it was used, and underwent fermentation. The rape-cake was put in, and it was then applied 2,500 gallons to the acre. In this country a Mr. Jackson had applied it in this way: he applied it to stretches of clover alternately, and before it was mature he had a sward of it cut and weighed it, and he found that without the manure it weighed 20lbs. and with it 37lbs. He had since persuaded his landlord to have cisterns built, and he had agreed to pay him five per cent. for the use of them.

ON THE TURNIP CROP AND THE MEANS OF PRESERVING IT.

TO THE EDITOR OF THE CARLISLE PATRIOT.

SIR,—The following observations upon the Turnip and its preservation, are the substance of an essay prepared by a Border Farmer with the view of having it forwarded to the English Agricultural Society's Secretary, previous to the Meeting of the last July, and early enough for the inspection of the Society's Committee as a Competition Essay; but from ignorance of the precise time fixed upon for the reception of these Essays, the writer found himself somewhat too late in its preparation. He now requests that you will afford space in your valuable columns for some observations which may prove useful to the less experienced of your agricultural readers.

Imprimis.—No department of agriculture has latterly occupied the attention, or engaged the ingenuity of the agriculturist more than the protection and preservation of what is commonly called his green crop; and of all the varieties of that sort of crop perhaps none has become of late years so valuable and important to the farmer, as the Swedish and common yellow turnip. It is because of the utility and importance of this root to the farmer, that I presume to set forth a plan for its preservation, which I have long since adopted myself, and to which after repeated experiments during an experience of thirty years, I give a decided preference.

In detailing my present views upon this subject I will refer to, and state my objections to other modes which continue to be practised by very respectable farmers, but which notwithstanding from repeated experiments I have found abundant reason to reject. Before entering upon this subject, however, allow me, by way of preliminary, to advert to the kind of situation upon which such crop should be stored. And first, it is indispensably requisite that the ground should be dry—perfectly dry. Second—convenience for use should be studied. The cow-house—the cattle shed—the turnip pit, should if possible be contiguous. Where the construction of the farm-buildings would suit, I would recommend the plan which I adopted upon my own farm, viz:—To have a row of cow-houses, or cattle-sheds, with a turnip-house of very moderate dimensions in the centre—to have the turnips piled in rows immediately behind this part of your buildings, with a back door from your turnip-house opening upon the mouths of the pits, or rather piles, and again doors from each side of the interior of your turnip-house to communicate with the cattle-sheds. Here you perceive convenience studied, and labour abridged, and likewise your cattle can be regularly supplied with turnips clean, fresh, and succulent. I am aware that a further abridgement of labour might be effected by forming a passage along the back wall of the building, immediately before the heads of the cattle, with a few doors opening therefrom upon the mouths of the turnip-pits, whereby the cattle may be supplied and the circuitous route by the turnip-house avoided.

But this advantage I conceive may be more than counterbalanced, without supposing more than ordinary inadvantage on the part of the servants. Even with a careful person while engaged in serving cattle in this way, a few roots in the course of a day may accidentally fall over the crib, whence they will naturally descend to the stalls below. The person so employed, even though well intentioned, may not see the importance of removing them until a more convenient opportunity, and ultimately may forget it

altogether, where it will remain to the serious annoyance if not to the injury of the animal there located. Such I have known from observation to be the case in numberless instances.

But to return to the business of storing. I may suppose a fine morning in the month of November, (though the precise time of commencing must be partly regulated by the season.) Having previously ascertained that your ground is in a fine mouldy condition, you go to work with a force of man and horse in proportion to the breadth of your crop. Half a dozen persons, women or men, with two drills or stiches each, will in the course of the day cut and pull a considerable breadth, always minding to leave the roots in the furrow betwixt each two persons, thereby leaving sufficient vacant space for carts passing without injury to the turnip. In cutting the root particular care should be taken not to injure the bulb by a too close incision, but rather to allow an inch of root to remain, leaving likewise any small fibres appertaining thereunto, with the little portion of fine mould which may adhere to each. In like manner the top should be cut an inch above where its stems are conjoined, leaving the root perfectly whole, and impervious to the action of air. With regard to the leaves or top of the turnip, I would recommend that they should be placed upon the top of the stich or drill, regularly as they are cut from the turnip, to remain there and be ploughed in as manure for a succeeding crop. And I am perfectly aware from repeated experiment, that they would prove more valuable consigned to this purpose than to any other use they ever can be put.

In the mean time horses, with carts and persons proper to manage them, will be forward in the field, and actively engaged in loading. Suppose then your cart loaded, and arrived upon the premises to which I previously referred, you commence by turning up, and discharging your carts consecutively in a right line from the back part of the building of twenty or forty yards in length, in proportion to the extent of your crop. This line will form a kind of guage for your carter, whose only business is to repeat the same thing over and over, until you have accomplished your undertaking, always minding that the second and every succeeding row should be placed as near its forerunner as convenience will allow. In the mean time a person may be employed in filling up the inequalities of the surface, consequent upon discharging a cart-load at once, which will form a stratum or layer of two and a half feet in depth. When you have thus extended your labours to the breadth of a few yards the person already engaged in levelling the inequalities of the surface, may commence the business of piling in rows. In so doing he will measure off a breadth of twelve feet, and by the use of a line to direct his operations will proceed in shovelling up the roots right and left with a wood shovel. When he has thus effected a vacant and intermediate space of three and a half or four feet, he will likewise have formed a row of pile, in height about four feet, and in breadth at bottom eight or eight and a half feet; thus he will continue his operations, the carter supplying him with materials as before, and if an active person, will have piled by the evening 100 tons of turnips to my certain knowledge. Having now several rows of pile already formed, the finishing process of thatch and rope may commence, when perhaps another pair of hands may be in requisition. With regard to the quality and quantity of thatch to be employed in covering, I would recommend a cover in depth not less than four inches, and that the straw should be properly prepared as thatch sheaves to serve as an effectual protection from heavy

and continued rains. Here, you perceive, there is nothing lost—what straw is here used is only set aside as it were to be forthcoming when it is really wanted. When your cattle require turnips they likewise require litter, and here it will be found both convenient and ready for use.

The mode of thatching which I have adopted, and which, of course, I would recommend, is simply this—a row of thatch-sheaves regularly spread, in depth as above stated, their ends closely pressed upon the ground and extending upwards; again another row similarly spread and overlaying the former, at least half a foot; and, third, a row horizontally placed upon the apex of the pile, being closely pressed or bent down on each side in order to overlay the second row. Thus you have a complete and efficient cover for a heap of the above dimensions. The ropes will now be in requisition for securing the cover, the composition of which is twisted straw, and should be placed as follows:—on each side of the summit of the heap will be placed a rope running parallel with the heap itself, made fast at each end by two wood pegs stuck in the ground. Again, the lower rows of thatch must be secured in a similar manner. Then a set of ropes running straight over the heap cutting the before-mentioned at right angles, equidistantly placed and numerous as necessity may require, with fastenings of a similar kind with the above, will secure and complete the fabric.

When your turnips are all piled and finished, according to the above description, if you have calculated nicely upon your quantity, and adapted your lines or rows accordingly, you will find that the figure which they present is that of an oblong square, the long sides of which run parallel with the back-wall of your cattle sheds.

Thus having executed your plan, and drawn your labour to completion, you have earned for yourself the following advantages, viz.,—plenty of nutritious food for your cattle, conveniently placed and easily accessible in all seasons, and during the worst of seasons, continuing to the last firm and fresh, sufficiently clean, and perfectly dry; and last, though perhaps not of the least advantage, on account of the order and regularity with which they are placed, you will be able at all times to ascertain to a nicety, by your daily consumption, what quantity of cattle you can supply therewith during any given time.

I have all along gone upon the supposition that the day was fine, and the soil mouldy. I am perfectly aware, however, that a fine morning in that season of the year is not unusually the precursor to a violent storm, bringing in its train rains both heavy and incessant. Should the like happen I would most particularly advise immediately to desist from all further operations, waiting most patiently the next fitting opportunity, and then to resume your labour with renovated vigour.

My own observation has taught me that if turnips are to be preserved firm, fresh, and succulent, they must on no account whatever be wrought amongst while the soil is working into a paste around them, and they bedaubed with it, when all the small fibrous adhesions of fine mould are sure to be washed away, which in my opinion assist in preserving, and likewise invigorating in some degree, the root, even after its transmission.

Suppose you, however, taken somewhat by surprise with a heavy rain, while engaged in pitting, with a lot uncovered, do not by any means touch them again until they are thoroughly dry, and have fairly resumed their wonted mouldy condition. Thus you may ensure yourself in spring

of turnips equally fresh and nutritious as when plucked from their native soil.

Many are the plans, however, resorted to by excellent farmers for their preservation, but to none with which I am acquainted can I bring myself entirely to approve. For example, one regretting that his turnip house is not of larger dimensions, has recourse to every piece of vacant shed, nook, and corner, about his premises, wherein he will stow turnips to any weight, and is bounded by the dimensions of the building alone from further augmenting the heap. I have frequently seen a turnip house of no ordinary dimensions crammed to overflowing, and piled to the height of seven or eight feet. Now what is the effect of all this? Why, a low degree of fermentation is the consequence, and during the process the nutritive juices or saccharine qualities are allowed to evaporate. Hence, the turnips become dry and less firm, fraught with less nourishment to the cattle, and the cattle less fond of them; but these evils are easily avoided by the plan which I have pointed out.

But the same objections are not applicable to a plan prevalent in many parts of England of placing the turnips, when rooted, compactly together upon a dry lea or grazing ground, with the top upwards as when growing, and intended to serve as a cover from, and preventive against, the inflictions of frost. But though the same objections may not be urged as in the former case, yet even this plan I conceive to be subject to many disadvantages; for example, the leaves, though they will partially exclude frost, are no covering from rain. Hence, though the rain descend in torrents, its ingress will be easy, but where shall it find egress? Like the waters of the Dead Sea, it will become stagnant as mud. Then, of course, the air becomes partially excluded, the turnips must frequently come out in a wet and dirty state, not a little enhanced by a glutinous consistency composed of the remains of decayed leaves. While such matter can form no inducement for cattle to eat, it must be excessively disagreeable to the person engaged in it; the inconveniences, too, during a long continued storm are not to be compensated by any advantages which I am able to perceive. The least objectionable mode, according to my view, is that of forming pits about a foot or a foot and a half in depth, and then piling them to the height of three feet above the surface, after which they can be covered according to the manner above described. Still, I conceive even this mode to be attended with considerable disadvantage. First, setting aside the extra labour employed in forming these pits, there is much additional trouble in getting them therein deposited. But, passing over all this, when actually deposited there, they are far too closely confined for certain and sound preservation.

With regard to the relative keeping virtues of the various classes of turnips, it must be manifest to every one at all observant in these matters, that the Swedish is best adapted to spring feeding, not merely because of its capability of enduring uninjured the influences of winter's frost, and perhaps the exhaling droughts of spring, but likewise that it partakes in some degree of the nature of the winter apple, which when properly preserved attains to a richness and a mellowness by keeping which it does not possess even when fully ripe. This improvement in quality, which is quite observable in, and I believe peculiar to, the Swedish turnip (though perhaps not thoroughly understood, may be the

result of some chemical or rather natural process) renders it peculiarly adapted to spring feeding.

Hence, I would recommend that all Swedes should be carefully stored, and studiously preserved unopened till the month of January, or even the beginning of February, until which time any of the various classes of yellow turnip, if properly stored, may be kept perfectly fresh and nutritive. Regarding the comparative worth of the various classes of turnip, there is room for some diversity of opinion. My observation inclines me to prefer the green-topped yellow bullock, as being at once firm, feeding, and peculiarly retentive of its nutritive juice; and though possessed of the self-improving qualities aforementioned as peculiar to the Swede, nor capable of retaining its moisture for so long a period, still I conceive it will be found equal, if not superior, to any other, during the months of December and January. Before commencing with the last mentioned turnip, I would strongly recommend the common white globe, as being peculiarly suited to cattle accustomed to feed upon grass. The globe, as is well known, is a light and porous, but juicy turnip, and hence better comports with the qualities of the food upon which the animal has been accustomed to subsist; and not only so, but likewise it is better adapted to the *then* physical organization of the animal. For example, the stomach of the animal having become widely distended by frequent repletion from a light and juicy herbage, is capable of containing more than is necessary or proper of consolidated food, which, were it taken in the same ratio, being not so quick and easy of digestion, must remain longer upon the stomach than is consistent with the health and improvement of the animal. Hence, I conceive that a quick transition in the qualities of food should be avoided, and the stomach would naturally and as certainly contract itself to the dimensions required by the qualities of food by which it is supplied, as the pupil of the eye accommodates itself to the action of light.

When you have finished your globes, which may be anywhere about the beginning of December, your yellows will be conveniently stored, ripe, and ready for use, and not only so, but your cattle will be duly prepared for an improved quality of food, and thus they will go on in their improvement, being duly provided and regularly supplied with a better quality of food as they advance in their growth and condition.

Such a procedure, from lengthened experience, I do confidently recommend to the inexperienced public.

I remain, Sir, your's truly,

A BORDER FARMER.

HOW TO JUDGE TURNIPS.

SIR,—As the time is now nearly at hand, when turnip exhibitions will take place, I am desirous of ascertaining the criteria of a good turnip; whether weight, size, taste, top, root, should all be separately considered, and the degree of importance upon each?

I have referred to your magazine, and also to your paper, for some information upon this subject. I believe there were some particulars published about twelve months since upon it by one of your correspondents, but that I cannot find.

Your obedient servant,

Lancing, Oct. 24th.

A FARMER.

CULTIVATION OF THISTLES.

SIR,—I have been much pleased with the ingenious economy shown by the farmers of Raveley, Wood Walton, Broughton, Warboys, and other parishes of this county, in the growth of thistles for seed. They seem to encourage an abundant growth of them along the sides of their highways. These they suffer to stand till they wither away. Thus the seed "comes riding all abroad on the wings of the wind," through the whole of those and adjoining parishes. Sufficient crops in following years are by these means raised in their own farms, without the expense of purchasing seed at the seedman's, or devoting a portion of their fields to raising it. I write on the supposition of the utility of thistles in agriculture. But as this is not generally understood; and as our flourishing society has been so thoughtless as not to offer a premium for their cultivation, I hope that some occupier in those parishes will have the kindness to enlighten us as to the particular advantages of this plant in agriculture; and the best mode of using it.

A HUNTINGDONSHIRE FARMER.

26th October, 1840.

WOODBIDGE FARMERS' CLUB.—The first Annual Meeting of the Woodbridge Farmers' Club was on the 13th Nov. held at the Crown Tavern, where the shew of agricultural roots was of a very superior order and numerous in point of quantity. Although those entered for the sweepstakes were limited, being the first exhibition of the kind, many were left out in consequence of the quality of the soil upon which they were grown not having been made a consideration in forming the rules for the adjudication of the prizes. The judges appointed were J. Wood, Esq., Melton, Mr. T. Heard, Seckford Hall, Mr. J. Smith, Boulge. The following were the sweepstakes:—6 best Swedish turnips, won by Mr. Cutting, Debach, beating Major Moor, Bealings; Mr. C. Baldry, Hasketon, and Mr. R. Baldry, Melton.—6 best round white turnips, won by Mr. C. Baldry, Hasketon, beating Mr. R. Baldry, Melton, and F. G. Doughty, Esq., Martlesham.—6 best mangel wurzel, won by Major Moor, Bealings, beating Mr. Roberts, Alderton.—6 best carrots, won by Mr. Heard, Seckford Hall, beating Mr. S. Ball, Martlesham.—The members of the club and their friends sat down to dinner at 4 o'clock, R. N. Shaw, Esq., in the chair.

HADLEIGH FARMERS' CLUB.—On Friday se'night an exhibition of roots took place at the White Horse, Hadleigh, which far exceeded the expectation of every person in attendance, considering the present most unfavourable season. The following gentlemen acted as judges:—Messrs. Mathews, Green, and Salmons, whose decisions gave universal satisfaction. The successful competitors were:—*For Mangel Wurzel*: 1st prize, Mr. R. Rand; 2nd ditto, Mr. Wm. Grimwade, jun.; 3d ditto, Mr. T. Partridge.—*For Purple Swedes*: 1st prize, Mr. T. Partridge; 2nd ditto, Mr. R. Kersey; 3d ditto, Mr. J. Boutell.—*For Green Swedes*: 1st prize, Mr. C. Brown; 2nd ditto, Mr. J. Berry, jun.; 3rd ditto, Mr. J. K. Norman. At the meeting of the members the subject of the preservation of different roots for winter food was fully discussed, and the opinion was come to "that the best plan of preserving beets and Swedes appears to be by clamping them up, and covering them with earth a few inches thick, leaving the clamp open in different places for a time, to allow the heat and evaporation to escape. The mode of securing the common turnip has not been as yet the subject of much experiment, but it is thought that pursuing the same plan as recommended for beet and Swedes would be advisable."

NETHEREXE FARMERS' CLUB.—This thriving and spirited club, whose meetings are held monthly at the Roughwell Inn, will hold their ploughing match at Netherexe, on Wednesday next, in a field, the property of Mr. Rewe. The dinner will be held at the Roughwell Inn.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At the Monthly Council held on Wednesday, Oct. 4, present, Thomas Raymond Barker, Esq., in the chair; Colonel Challoner, Sir Samuel Crompton, Bart., M.P., James Dean, Esq., Humphrey Gibbs, Esq., William Fisher Hobbs, Esq., William Shaw, Esq., Thos. Weal, Esq., Henry Wilson, Esq., William Youatt, Esq., William Sloane, Esq., of Hartsbourne-place, Stanmore, Middlesex, was elected a Governor, and the following gentlemen members of the Society:—

Jackson, Thomas, Redwane, Rudgeley, Staffordshire
Morgan, Caleb, jun., Hour Lodge, Ross, Herefordshire
Mileson, Rev. Edgar, Red House, Ipswich, Suffolk
Jervoise, S. Clarke, Porters, Shenley, Barnet
Jordan, J., Phenice Farm, Leatherhead
Knight, Richard, Stainford
Barton, Samuel, Rochestown, Clonmel, Ireland
Lee, Thomas, Barkstone, Lincolnshire
Gardner, Edward, Sapon Hall, Newmarket
Berney, Rev. Thos., Hockering, near Norwich
Cooper, J. R., Westleton, Suffolk
Wyatt, Oswood, Troy House, Monmouth
Balguy, John, Duffield, near Derby
Acland, Sir P. P., F. P., Bart., Fairfield House, Bridgewater

Groom, Richard, 3, Henrietta-street, Covent-garden
Frampton, Henry, Moreton, Dorchester, Dorset
Lambert, James, Dorchester, Dorset
Owen, John, Lynn, near Shenstone, Staffordshire
Barr, Edward, Dunstable
Jeffrys, Edward, Much Wenlock, Salop
Jones, Thomas, Buildwas Abbey, Much Wenlock
Davies, John, The Abbey, Much Wenlock
Adney, George, Harley, Much Wenlock
Downes, Thomas, Catton, Much Wenlock
Wadlow, Edmund, Easthope, Much Wenlock
Evans, Charles Henry, Henblas, Anglesey, N. W.
Bedford, Gilbert, Newland's Grange, Ramsgate
Green, Francis, Court Henry, in Llandilo, in Carmar-
Marshall, Joseph, Hilgay, Norfolk [thenshire
Canham, R. G., Hilgay, Norfolk
Knowles, John, Easton, Newbury, Berks
Williams, Rev. James Llanfairynghornwy, Anglesey, N.W.

Walton, William, Castle-Ashby, Northamptonshire
Robinson, Thomas Yardley, Hastings, Northamptonshire

Griffith, John, Llanderis, Cardigan
Powis, Earl of, Powis Castle
Langwith, Joseph Silvester, Grantham
King, John, Relby, Lincolnshire

Colonel Challoner, Chairman, read to the Council the Report of the Finance Committee, held that day.

Mr. Legard, Mr. Graburo, and Mr. Fleetwood Shawe, the Judges of Implements at the Cambridge Meeting, transmitted their final and certified Report.

SPECIMENS OF WHEAT.

Colonel Le Couteur presented, on the part of a lady in the county of Surrey, an interesting collection of specimens of wheat, arranged on ten trays, and exhibiting the plant as grown—both in a vigorous state and affected by disease, as well as showing by various specimens the influence of various applications to the plant during its growth.

Other specimens were announced for the Society's museum, from Sir Paul Mildmay, Bart., M.P., from Somersetshire; Captain Downes, Director of the Naval and Military Institution; Mr. Rigg, Messrs. Drewitt and Son, Mr. J. F. Baines, Mr. R. B. Harvey, Mr. Henry Clarke, and Mr. S. Guppy.

PRESENTS.

Mr. Warwick, of Cambridge, presented three coloured prints of the Society's Cattle Yard, and Dinners in Trinity College Hall and Downing Quadrangle; and the following publications were also received:—"The Highland Society's Quarterly Journal," "The Veterinarian," Mr. Lloyd's "Agricultural Chemistry," "The Mark Lane Express," "Bell's Weekly Messenger," "Farmer's Journal," "Magnet," "Newcastle Chro-

nicle," "Sussex and Cambridge Advertiser," "Hampshire Telegraph," "Yankee Farmer," "Transactions of the Agricultural Society of India," "Proceedings of the Labourer's Friend Society," "Reports of the Huntingdon and Leicestershire Agricultural Societies."

EPIDEMIC AMONG CATTLE.

Communications from the Duke of Richmond, Lord Camoys, G. T. Heathcote, Esq., M.P.; Mr. Bates, of Wiltshire; Mr. Field, of Lincolnshire; Mr. Lee, of Shropshire; and Mr. Willich (communicating Mr. Hall's remedies, from Huddersfield) announcing the progress of the disease in various parts of the United Kingdom, and soliciting supplies of the Society's circular of proposed remedies were read. It was resolved that a further impression should be printed off, and distributed to any party applying for copies, on the written recommendation of a member of the society. In Lincolnshire and Wiltshire the disease was stated to have extensively affected the flocks of sheep, and that much inconvenience was found in the mode of applying poultices or lotions to the feet of these animals. Mr. Fisher Hobbs stated, that he had found much benefit in this respect, result from strewing quick lime over the ground on which the sheep had to stand.

EXPERIMENTAL FARMS.

A petition was presented from the Wester Ross Farming Society, in the North of Scotland, praying the society to take into its consideration the expediency and advantages of an experimental farm; and Sir Francis Mackenzie presented a printed prospectus of a private undertaking of this kind in Ross-shire.

TRIALS OF PLOUGHS.

Sir Francis Mackenzie also by letter called the attention of the Society to the Report of the committee on reeds and roots at the recent meeting of the Highland Society, at Aberdeen, and suggested the great boon the public would derive from a comparative trial of all the superior kinds of ploughs known in Britain, or even in Europe, undertaken by the sanction and under the authority of the Royal Agricultural Society of England, the result to ascertain the plough best suited to each particular soil with the least draught.

LONG-WOOLLED SHEEP.

Mr. E. Dawson, of Inghorpe, communicated his wishes on the part of the breeders of long-woolled sheep, that the Society would give a premium, in a separate class, to the Cotswold or Gloucester-bred sheep.

HEDGE-ROWS.

Mr. Wm. Petrie communicated, from Germany, his recommendation that the hedge-rows in England should be planted with useful trees as in Switzerland, and along the Rhine; in Germany the hedge-rows, to a very considerable distance, are planted with walnut, apple, pear, and cherry trees.

INDIAN SEEDS.

On the motion of Mr. Dean, it was resolved that application for a report should be made to those gentlemen to whom the Council confided the trial of the Indian seeds transmitted to the Society by Professor Royle in the early part of the present year, and obtained from those parts of India most similar in climate and general aspect to the agricultural districts of England.

SMITHFIELD SHOW.

Mr. Gibbs, the Honorary Secretary of the Smithfield Club, announced to the Council that the four days of the show would this year be held on the 9th, 10th, 11th, and 12th of December.

The Marquis of Downshire communicated a paper from Lord Combermere's agent, in Cheshire, on "the Application of Bone Manure to Grass Lands;" and Mr. Grey, of Dilston, "Further experiments on the application of Nitrate of soda." A communication was received from Buckinghamshire, "On the conveyance of cattle by railway, &c." but being anonymous, and not certified by the name of the writer, the Council determined that, by the rules of the Society, it could not be received. Communications were also received from Mr. Pooler, the secretary of the Royal Horticultural Society of Ireland, and Mr. Dixon, secretary of the Manchester Agricultural Society.

The Council then adjourned to the 18th instant.

A Council was held on Wednesday, Nov. 18, present David Barclay, Esq., in the chair; Thos. Raymond Barker, Esq.; French Burke, Esq.; Colonel Challoner; Humphrey Gibbs, Esq.; and William Goodenough Hayter, Esq., M.P.—who Lord Walsingham, of Merton Hall, near Thetford, Norfolk; Sir Hungerford Hoskyns, Bart., of Harewood, near Ross, Herefordshire; William Ormeby Gore, Esq., M.P., of Portland-place, London; T. Hawkesworth Fawkes, Esq., of Farnley Hall, near Otley, Yorkshire; Richard Westbrook Baker, Esq., of Cottesmore, near Stamford; William Stephenson Scholey, Esq., of Clapham Common, Surrey; and F. O. Oldham, Esq., of Belle-ameur Hall, near Rugeley, Staffordshire, were elected Governors, and the following gentlemen Members of the Society:—Mayer, Thomas, and Mayer, Thomas Watton, veterinary surgeons, Newcastle under-Lyne
Hoare, Sir H. Hugh, Bart., St. James's-square, Stour Head, Wilts, and Wavenden, Bucks
Child, John, Merton Mills, Surrey
Haynes, Henry, Whittlesey
Moore, W., Gueshill
Wood, Lieut.-Col. Wm. L., Meopham Bank, Trowbridge
Selby, Prudeaux, Paston, Northumberland
Porter, William, Friston, near Boston
Robinson, Francis, Frampton, Boston
Artindale, James, Boston
Batson, Thomas, Chisbury, Little Bedwyn, Wilts
Veale, James Harris, Passaford, Hatherleigh, Devon
Smith, Richard, Marion Lodge, Burlington, Yorkshire
Easton, Viscount, M.P., Eastnor Castle, Tewkesbury
Jenkins, Thomas, Spetchley, Worcester
Garth, Captain, R.N., Haines Hill, Maidenhead
Brigstoke, William Owen, Blaenpont, near Cardigan
Pritchard, Charles Arthur, Tyllwydd, near Cardigan
Griffith, John, Hunders, near Cardigan
Kent, John, Stratford, Essex
Castellain, Hermenegild (Belgian Consul), 3, Copthall-court, London
Smyth, Sir Henry, Bart., M.P., Berechurch, Colchester
Belli, Rev. C. Almeric, South Weld, Brentwood, Essex
Lawrence, Muntion, Dunsby Hall, Folkingham
Dawson, William, Binthorp, Folkingham
Scales, L., Dowsby, Folkingham
Palmer, Rev. P. H., Granby, Nottinghamshire
Hickman, Harvey, Colnbrook, Bucks
Owen, Edward Smith, Condover Park
Hemming, William, Fox Lydiat House, Broomsgrove
Heath, William, Salford, Bedford, Warwickshire
Dod, John Whitehall, Cloverley, Whitechurch, Salop
Nash, Charles, Biggleswade, Beds
Smart, William, Fig Tree-court, Temple
Nock, John, Kuiver, Stourbridge
Greenall, John, Warrington
Jennings, W., Duffield
Maples, Thomas, Spalding
Osborn, George, jun., Pattishall, near Northampton
Firman, James B., Walter Belchamp, Halstead, Essex
Balls, James, Althamstone, Halstead, Essex
Godrich, William, Durlay, Botley, Hampshire
Boswell, Alexander, The Grange, Aylesbury, Bucks
Mason, John, Wrest Park, Silsoe, Bedfordshire
Whitmore, Thomas, Apley Park, Bridgenorth, Salop
Wyndham, Lieut.-Col. C., Rogate, near Petersfield
Ottar, the Rev. William, Rectory, Cowfold, Horsham
Castellain, C., 3, Copthall-court, and Upper Clapton
Washbourne, H. J., Colesbourne, Gloucester
Jones, H. J., Brockworth, Gloucester
Phillips, Joseph Taylor, New Lodge, Shiffnal, Salop
Phillips, John, Brockton Leasons, Shiffnal, Salop
Pedder, Edward, Clifton Hall, Preston, Lancashire
Yates, John, Colton, Rugeley, Staffordshire
Davies, Henry Thomas, Orleton, near Worcester
Bennett, William George, Frampton, near Cirencester
Knight, John, Stamford
Scourfield, William Henry, The Mote, Pembrokeshire
Aynesley, J. Murray, Forkington, Bristol
Kington, Thomas, Charlton House, Bristol
Horner, Colonel, Wells Park, Frome
Borough, Burton, Chetwynd Park, Newport, Salop
Gough, Edward, Gravel Hill, Shrewsbury
Wilkinson, L., Chawton, Cowes, Isle of Wight

Colonel Challoner gave notice of his intention to propose the following subject for one of the Society's prizes:—"On the Comparative Advantages of Horse and Ox Teams for Farm-work; showing the comparative expenses of purchase, and keeping the one and the other; the comparative work they are capable of performing; and the advantages accruing to the farmer, or the ultimate increase of value of the one and the decrease in the value of the other."

Communications were received from Mr. Chawner, Hon. Sec. of the Lichfield Agricultural Society, and Mr. W. Rising, Secretary of the East and West Flegg Society.

Mr. Shaw presented to the Society a copy of "The Farmers' Almanac and Calendar for 1841," containing a mass of condensed information on topics connected with agricultural affairs; * the Lichfield Society, a copy of their rules and regulations (adopting as their fundamental rule the condition of the Royal Agricultural Society of England); the Geological Society of London, their printed proceedings; the Statistical Society, the last part of their transactions; the Labourer's Friend Society, their printed proceedings; and the respective editors, the "Farmers' Magazine" for the present month, and the (American) Hartford Daily Courant.

EPIDEMIC AMONG CATTLE.

Professor Sewell's Report on the present state of the epidemic, and mode of treatment, was announced to the Council as being in a state of immediate preparation.

The Society have received information that the disease is extending rapidly towards Scotland, and proceeding to Hampshire, Sussex, Surrey, and various other counties of England, which have been hitherto exempt from this troublesome visitation; and of a geological formation, on which at first no cases were found to occur. By exercising the most absolute quarantine (not allowing the animals even to cross a public road), Lord Braybrooke, at Audley End, in Essex, has preserved his stock from the infection surrounding his estate. In Suffolk, Sir Edward Kerrison's stock, consisting of nearly 1,000 sheep, 30 head of cattle, cows, bullocks, and young stock, 20 horses, and upwards of 50 pigs, on the farm in his occupation, at Oakley Park, have entirely escaped the prevailing epidemic; although Mr. Carlton Smythies, his steward, states that nearly every farmer in the neighbourhood has had his stock severely affected by it. Mr. Smythies attributes this fortunate escape to the mode of feeding; and, taking every precaution to prevent their coalition with stock closely surrounding them, has often observed that stock of all kinds thrive the most favourably by having a change of pasture allowed them, and believes that the constitution of the stock is improved, and less likely to be attacked by cold and fever—the predisposing causes, in his opinion, of the epidemic in question.

The Council stands adjourned to the first Wednesday in December. The General Meeting will be held on Saturday, the 12th of December, and the rooms of the Society will be thrown open, for the accommodation of members in town, during the evenings of the Smithfield show week, as last year.

FARMERS' INSURANCE INSTITUTION.—

Persons passing through the Strand, London, may see a plough elevated on the top of the offices of this Institution. It is the identical plough that won the first prize at the ploughing match, which took place at the Meeting of the Royal Agricultural Society at Cambridge in July last, and which was very handsomely presented to the Institution, by Lord Western, to whom the first prize was awarded on that occasion.

* The Farmers' Almanac is published by Ridgway.

WITHAM AGRICULTURAL MEETING.

[The following is a continuation of the article at page 435, which through mistake was omitted.]

EXPERIMENT WITH WET MUCK, DRY MUCK, AND SALTPETRE, 1840.

WET MUCK.—*One Quarter of an Acre of Oats.*—One ton of wheat straw, littered in a cart-horse stable, where five horses were standing; was six weeks making the same into manure; one pail of water put upon the litter every morning (42 pails); stable cleaned out once a week; manure exposed to the air and rain; stirred over four times, the same as the dry muck: produced, when carted upon the land, the 7th of February, 4 tons, $\frac{1}{2}$ cwt. and 12 lbs.; laid upon 40 rods; carted, ploughed, and sown, all the same day.

SALTPETRE.—*One Quarter of an Acre of Oats.*—40 rods, manured with saltpetre, at the rate of one cwt. per acre; ploughed and sown the same day as the mucked land.—N.B. A very light crop upon all those parts sown with oats. The subsoil gravel, very little rain until harvest. Manure apparently did very little good upon such land this summer.

DRY MUCK.—*One Quarter of an Acre of Oats.*—One ton of wheat straw, littered in a cart-horse stable, where five horses were standing; was six weeks making the same into manure; stable cleaned out once a week, and carried under cover; no rain or water upon it; stirred over four times, to prevent its moulding: produced, when carted upon the land, on the 7th of February, 1 ton, 16 cwt. and 8 lbs.; all ploughed and sown the same day.

Wet muck produced 4 bushels 1 peck per acre more than the dry muck, and 1 cwt. and 3lbs. more straw per acre; saltpetre produced 2 bushels and half a peck per acre more than either wet or dry muck, and 1 cwt. 20 lbs. more straw.

EXPERIMENT WITH SALTPETRE.

One Quarter of an Acre of Oats manured with a $\frac{1}{2}$ cwt. of Saltpetre.

	£.	s.	d.
1 qr. 7 bus. and 1 pint of Oats, at 25s...	2	6	10 $\frac{1}{2}$
1 bus. Tail, say	0	2	1 $\frac{1}{2}$
<hr/>			
4 cwt. 3 qrs. 5lbs. of Straw, at 9d. per cwt.	0	3	6
16lbs. of Caveings.	0	0	3
40lbs. of Chaff	0	0	3
<hr/>			
	2	13	0

Saltpetre Oats weighed 28 $\frac{1}{2}$ lbs. per bus.

Value per Acre 10 12 0

One Quarter of an Acre of Oats, no Manure.

1 qr. 7 bus. of Oats, at 25s. per qr.	2	6	10 $\frac{1}{2}$
1 bus. of Tail ditto, say	0	2	1 $\frac{1}{2}$
<hr/>			
	2	9	0
4 cwt. 2 qrs. 4lbs. of Straw, at 9d. per cwt.	0	3	3
15lbs. of Caveings	0	0	3
40lbs. of Chaff	0	0	3
<hr/>			
	2	12	9

No manure Oats weighed 37 $\frac{1}{2}$ lbs. per bus.

Value per Acre 10 11 0

N.B. The Oats were after Swede Turnips, drawn off the land, mixed soil; the field was fallowed for the turnips, manured for the same with 60 bushels of sprats per acre, and no other manure or compost.

A statement was also read of an experiment with narrow and broad drilling, from which it appeared that the nine-inch drilling had not been so successful as the six.

Mr. LUNGLEY said, there was a difference between the six and nine-inch drilling of three bushels; and his friend and neighbour had tried the same, and he made it nearly six bushels. He hoped some gentlemen would try it next year, for it had been a matter of discussion amongst them for some time.

Mr. W. F. HOBBS said, Mr. Jackson had worked it out fairly on light land, and he told him he had on an acre five per cent. more by the six inch than by the nine, and ten per cent. more straw; therefore it was clear they could not recommend any general system of farming for adoption, but they must study the nature of the land and what would suit it. He was travelling with Mr. William Hudley in another part of the country some time since, and he found that in nineteen cases out of twenty, the nine-inch system was adopted for their light land. Therefore he thought the farmer must judge for himself which was the best way.

Mr. JAMES BEADEL said there was one circumstance in the nine-inch drilling which they ought to bear in mind—they must recollect they were called on to use a much greater quantity of seed, and before it was adopted they ought to be satisfied that it depended on the nine inch drilling and the increase of seed. Lord Western was very fond of the nine inch drilling, but he had tried it on whole fields and had not tried it with other drilling, and either from better farming or the season the crop might be good, and he attributed it to the nine inch system. He (Mr. B.) thought the farmers should be satisfied that the increase of crop did arise from that and not from any other cause. (Hear.)

Mr. F. U. PATTERSON said that he had tried the exploded system of broad cast, and he found the increase of produce as compared with the nine-inch system of drilling was as much as four bushels an acre. He drilled two bushels and a half an acre on the nine inch system, and he sowed the same quantity broad cast, and he had 32 bushels from the drilling, and 36 bushels three pecks from the broad cast, making more than four bushels in favour of the latter. (Hear.)

Lord RAYLEIGH said, gentlemen who had tried experiments in the way which Mr. Lungley had done, did great good, and he would propose "Mr. Lungley's health, as the benefactor of Agriculture in that neighbourhood." (Drunk with cheers.)

Mr. LUNGLEY, after returning thanks, said, no man was more gratified with experiments than himself, and what little time he had to spare, he meant to employ in that way, which he hoped might be of some little advantage to his neighbours. (Cheers.) His young friends would oblige him if they would try experiments and let them know the results this time twelvemonths, going through them with that exactness that they might depend on them. (Cheers.)

Mr. LUARD said, he would give "The health of a gentleman who had done much for the advancement of Agriculture, by gaining prizes at Oxford and Cambridge—he meant Mr. Fisher Hobbs." (Cheers.) No man, he believed, in Essex, had taken more pains to advance the interests of Agriculture than Mr. Hobbs, both as a grower of corn and a breeder and grazier of stock. (Drunk with cheers.)

Mr. F. HOBBS returned thanks, and added, if his humble exertions had met their approbation, he should persevere in the same course. When he first came before them, nine years ago, he found there was little stimulus for improvement in the breed of stock

or in the selection of roots and seeds for Agricultural purposes, and he believed that by exhibiting stock, and by the production of seeds and roots, he created a stimulus, and he trusted they would still go on in the cause of improvement. (*Cheers.*)

Lord RAYLEIGH announced that they had another statement of an experiment made by Mr. J. Hutley : and the following was read by Mr. James Beadel:—

EXPERIMENT WITH DIFFERENT KINDS OF BARLEY.

Name of Barley.	Quantity of best per rood.	Quantity of tail per rood.	Weight of best per rood.	Weight of tail per rood.	Weight of chaff.	Weight of straw.	Price per Qr.
	b. pks.	pecks.	st. lbs.	lbs.	lbs.	lbs.	s.
Potter's Barley..	12 0	1	46 2½	9	117	003	38
Brewer's Delight.	12 0½	1	47 2	10	80½	671	39
American.....	12 1½	1½	47 6	13	84	702	37
Long-eared Nottingham.....	11 2	0½	44 3	3	90	650	37
Chevalier.....	13 0	0½	49 13	3	91	643	30

N.B.—The difference between the Chevalier and Nottingham is 16s. 3d. per acre, the Chevalier being the most per acre.

The PRESIDENT proposed "The health of Mr. Hutley," and thanks to him for his communication. (*Drunk with cheers.*)

Mr. J. HUTLEY having returned thanks, said, there was a great difference in the chaff, and he thought this was in consequence of its being a windy day when they dressed the last sort; the first was a still day, and he had no doubt that made the difference in the weight of chaff.

The PRESIDENT gave the health of Mr. T. Beadel, and thanks to him for the use of his field. (*Cheers.*)

Mr. BEADEL returned thanks.

Lord RAYLEIGH said, he did not know whether any trials had been made with regard to different kinds of wheat, and whether one kind had shown itself more liable to disease than another; but he had grown next to each other some of Mr. Foster's Imperial and some of the Whittington, and the Whittington had the red gum, while Mr. Foster's had not, although it was on the next ridge. (*Hear.*) Whether the Whittington was more liable to the red gum he did not know; but he had a good crop of Foster's Imperial, which was better than the Whittington, and was not touched. As they had several members of a Farmer's Club present, and as a gentleman near him had already made himself very useful by reading the statements of others that evening, perhaps they might draw from them some information of what had been passing there of late, and he would propose the health of Mr. James Beadel." (*Drunk with cheering.*)

Mr. JAMES BEADEL said, he wished he could give them all the information which they as members of the Farmer's Club had derived from it since it had been constituted; but there was one matter relating to it on which he thought they might congratulate themselves—that was that when the club first originated, it was feared by some it would interfere with this Association, but he thought the number of gentlemen here to-day contradicted that matter, and they need be under no alarm that it would interfere with that institution, which was calculated to do great good to agriculturists at large. (*Cheers.*) The meetings at the Farmer's Club were held once a month, and a fresh subject was discussed every month, and as an individual member he never repented that he belonged to it, for at every meeting he brought home more information than was equivalent to his subscription for the year. (*Cheers.*) Within the last month they had adopted this course

—they had engaged a room and sufficient attendance, and were procuring a library, so that every member on every market day would have the use of that room for himself and a friend, and could go there at any hour from ten in the morning to seven in the evening: it would be kept for the use of members, who would there find conveniences for consulting any work on Agriculture. The subject which they discussed at their meeting last night was the best mode of preparing and sowing wheat: they had a great many modes pointed out, and every man seemed to fancy his plan the best; they had it dressed with vitriol, arsenic, lime, and salt, and in all different modes, and all grew very little smut, yet all grew some, but he (Mr. B.) had no doubt that before this time twelve months they should get rid of all smut out of their Society. (*Laughter.*) One gentleman offered to show the most smutty wheat that could be produced, and said he was satisfied that with his mode of wetting he could grow a good sample without smut; and he (Mr. B.) offered to pay for the most smutty sample that could be got if he would try the experiment. (*Cheers.*) There was one circumstance connected with Farmers' Clubs which he would mention—that was, the farmers were so extremely modest that it was impossible to get anything out of them: at their first meeting there were not more than two who would say anything—at the next there were four or five,—but last night they had about twenty who had something to say; and if gentlemen would turn their attention to circumstances that came within their own knowledge, and not have so much mock modesty as to be afraid to express their sentiments, they should get information and convey it to the farmers generally. (*Cheers.*) The Braintree Farmers' Club was the only one in the county at present, but he was sure if they drew attention to clubs of this sort it would be highly beneficial: for 10s. a year they would get 50 shillings' worth of information. (*Cheers.*) He could only say that their Club had succeeded to the utmost expectations of those who were its early friends, and he had no doubt that in a year or two all expected from it would be realized. (*Cheers.*) He was wedded to Agriculture as much as he possibly could be—if there was any occupation the success of which was nearest his heart, it was Agriculture, and he would do all in his power to promote it. (*Cheers.*)

Mr. SHEPHERD. You did not give us the receipt for wetting smutty wheat.

Mr. BEADEL. If you belong to the Club you will find it on its minutes. (*Cheers and laughter.*)

Several other toasts were drunk and responded to, and the meeting separated.

THE FARMERS' ALMANAC AND CALENDAR, FOR 1841.—By CUTHBERT W. JOHNSON AND W. SHAW, ESQRS. (Ridgway, London.)—This little work, to the first number of which we have now the pleasure of calling the attention of our readers, is decidedly one of the most useful publications for the important body for which it caters, that has passed in review before us during some lengthened period. In its compilation, the greatest care and attention appear to have been bestowed: while the numerous tables, particularly those of grain and land, by affording the farmer every facility for arriving at his necessary outlay, and for calculating his probable profits, without having recourse to figures, must prove of great advantage to every agriculturist in the kingdom, to whose support it is justly entitled.—*The Farmers' Journal.*

AGRICULTURAL REPORT.

GENERAL AGRICULTURAL REPORT FOR NOVEMBER.

Although there have been experienced in most parts of England, during the period forming the subject of this report, some extremely violent gales of wind, accompanied by deluging rains, the latter of which, as a matter of course, have had the effect of inundating the lowlands, and causing somewhat extensive damage to the newly sown wheat—we are happy to state that the weather, taken as a whole, has been seasonably fine, and that scarcely any interruption has been offered to the progress of either ploughing or sowing in any quarter. Towards the month's conclusion, scarcely any of the autumn grain was unsown even so far north as Derbyshire, while a pretty general conclusion was expected to be arrived at by or shortly after the 10th proximo. Hence we may safely venture to assert, without the least fear of contradiction, that the past has proved one of the finest seed times recollected since 1826; thus one great step has been secured towards an abundant general harvest next year, as we feel assured it will be conceded, that the finer the condition in which both land and corn is, at that highly important era, the fairer must be the future prospects of our farmers.

The stocks of foreign wheat, in the various ports of the United Kingdom, are now considerably on the increase; but, as the Baltic will speedily become unnavigable, owing to the ice, and as scarcely any grain was shipping in the Mediterranean to this country at the date of our last advices, no material addition can now be made to them until about the middle of May next. This circumstance will tend to prevent that depression in the value of wheat of home produce, which many of its producers were some time since led to imagine; nevertheless, it must be admitted that the prices of that valuable description of corn at this moment are far from remunerative, and we fear that such will be the case for some months hence.

An unusually large supply of most kinds of grain has been submitted to the process of thrashing of late, and we learn that the yield has arrived fully up to, and in some instances exceeded, the expectations of the growers. As to the weight of the various parcels, there is a great increase compared with that noticed at the corresponding season last year, which is of no mean importance to both buyers and sellers.

The principal markets of consumption held in our provincial districts, as well as Mark Lane, have been moderately well, but by no means heavily supplied with wheat; yet, on account of the parcels coming to hand in middling condition, and the absence of the most extensive dealers, the inquiry for all descriptions has proved exceedingly heavy; and, in order to effect sales of the weathered qualities, an abatement of from 1s. to, in some few instances, 2s. per quarter has been submitted to. Malting barley has declined 1s.; grinding and distilling sorts 2s. to 3s. per quarter. Oats have gone off slowly, and the quotations have had a downward tendency. Beans, peas, and flour, have undergone little fluctuation.

We regret to have to intimate that the epidemic amongst cattle has continued with scarcely any abatement, while some serious losses have been sustained by graziers in the midland counties, both as respects beasts and sheep.

Throughout Scotland, most of the wheat has been already sown, while, on the Borders, the young plants have made their appearance above ground in good situations, and are looking remarkably strong and healthy. In the backward districts, but little grain has been thrashed out; yet the various markets have been supplied, and the trade in them has proved heavy, at barely stationary prices.

Most farm labours, usually carried on at this period of the year in Ireland, are well in their place, and our intelligence thence is somewhat flattering, if we except the comparative deficiency in the productive qualities of the new wheat.

The following is our usual monthly statement of the supplies and prices of fat stock exhibited in Smithfield cattle market. The supplies have consisted of 15,920 beasts; 120,940 sheep; 790 calves; and 4,840 pigs; while the quotations have ruled as follows:—Beef, from 3s. 4d. to 4s. 10d.; mutton, 3s. 6d. to 5s.; veal, 4s. 4d. to 5s. 8d.; and pork, 4s. to 4s. 10d. per 8lbs. to sink the offals.

Owing to a large portion of the supplies of both beasts and sheep having been much infected with the prevailing epidemic, and the half-fat state in which the former have arrived from our grazing districts, the demand for the best descriptions has proved brisk, at an advance of from 2d. to 4d. per 8lbs.; but the inferior kinds have been a mere drug.

A STATEMENT AND COMPARISON of the SUPPLIES and PRICES of FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, November 25, 1839, and Monday, November 23, 1840.

At per 8lbs. to sink the offals.

	Nov. 25, 1839.		Nov. 23, 1840.	
	s. d.	s. d.	s. d.	s. d.
Coarse & inferior Beasts	2 6	2 10	2 10	3 2
Second quality do.	3 0	3 2	3 4	3 6
Prime large Oxen.....	3 6	4 0	3 8	4 2
Prime Scots, &c.....	4 2	4 6	4 6	4 10
Coarse & inferior Sheep	2 10	3 4	3 6	3 8
Second quality do.	3 8	3 10	4 0	4 4
Prime coarse woolled do.	4 0	4 6	4 6	4 10
Prime Southdown do. .	4 8	5 0	4 10	5 0
Large coarse Calves ..	4 0	4 6	4 10	5 0
Prime small ditto.	4 8	5 0	5 6	5 8
Large Hogs.....	4 0	4 6	4 0	4 6
Neat small Porkers ..	4 8	5 0	4 8	4 10

SUPPLIES.

	Nov. 25, 1839.	Nov. 23, 1840.
Beasts.....	2,931	3,161
Sheep	21,140	20,630
Calves.....	87	67
Pigs.....	550	673

The arrivals of slaughtered meat up to Newgate and Leadenhall markets have been considerably on the increase, particularly those from Scotland and Yorkshire; while the demand in both markets has been in a depressed state, at about previous currencies. The meat, from distant quarters, has come to hand in excellent condition.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

ALL-HALLOW FAIR—WEDNESDAY.—From what we could learn to-day, we are inclined to think the prices of lean stock are rather higher than last Hallow Fair, but then cattle are better conditioned this year. The only kind that we can with confidence quote at a considerably higher price is the short-horned cattle, which, we would say, is fully 10 per cent. up. Some crosses between the Teeswater and polled cattle from Perthshire, three-year-olds, brought 15*l.*; polled Angus, and some rising four, brought from 12*l.* to 14*l.* 14*s.* Mr. Robertson, near Callander, got 8*l.* to 11*l.* 10*s.*, for Angus-shire two and three-year olds. Small Highland cattle, one-year old, 5*l.* to 6*l.* 10*s.*, two-years old 6*l.* to 8*l.*, three-years old 7*l.* to 10*l.* 10*s.*—a few small Caithness cattle were offered at from 4*l.* to 6*l.* Five and Angus-shire cattle two-years old, 8*l.* to 10*l.* 10*s.*, three-years old 10*l.* to 13*l.* 13*s.* There were but few four-year olds, and they brought from 15*l.* to 15*l.* 15*s.* Teeswater stirks, of which there was an inconsiderable number in the market, brought from 6*l.* 10*s.* to 8*l.* There were fewer beasts than last year—on Tuesday about 9,000; to-day between 3,500 and 4,000. There was a number of sales quickly made before 12 o'clock to-day; but after that hour sales became very dull, and continued so. Inferior cattle were disposed of in the afternoon at a considerable reduction from the prices obtained yesterday; but good lots kept their prices. There was a considerable number of cattle unsold. Owing to the very prevalent disease in the south, many were prevented from purchasing, and we are sorry to understand that it has made its way into Berwickshire and East Lothian. A great number of sheep were shown in the Bughts this morning, but the sales were slow, and a number unsold. A good deal of money would be lost by the dealers both on cattle and sheep. Although the prices are much the same as last Falkirk Tryst, this was the duller great market we have had for the last six months. Good cattle were duller than the inferior sort. Fat cattle may be quoted exactly the same as the last two weeks in the Grassmarket. Current prices for good fat 7*s.* 2*d.*, and a dull sale for inferior sort; ten cattle shown by Mr. Wilson, Rose-street, deserve especial notice; nothing near equal to them has been shown at any market this season. The like was never exhibited at Hallow Fair; they were estimated at 48 or 50 stone; he refused 25*l.* (8*s.* per imperial stone), and drove them home to kill himself—asking 26*l.*

ANDOVER.—The number of sheep penned at our fair, on Tuesday, was not so large as usual. Dealers commenced making their purchases early in the day, and the greater portion of the best sheep were easily disposed of, upon better terms than at any of the late fairs in the neighbourhood. The weather being very unfavorable soon after business commenced, occasioned rather a slow sale for second rate sheep, but nearly the whole were disposed of.—The town fair was held on Wednesday, but the continued prevalence of unpleasant weather deterred many from attending it. The quantity of cheese was small, but greater than at the last fair, and sold very readily, at prices as under:—Half coward, 40*s.* to 45*s.*; North Wilts, 60*s.* to 62*s.*; best Somerset, 66*s.* to 68*s.*; best Cheddar, 70*s.* to 72*s.* The dealers attending on this occasion determined to supply the future Andover fairs with a large stock of cheese, as some disappointment was experienced recently from the deficiency in the quantity offered for sale. There was a considerable number of pockets of Hops, but a great depression seems to have taken place in price; several sales were effected, but at lower rates than at Weyhill Fair. The show of horses and other cattle was of the usual description.

CHELMSFORD FAIR was moderately supplied with beasts, and the trade generally was extremely dull. Some good Hereford heifers met a ready sale at from 10*l.* to 13*l.* Good Hereford steers sold at from 12*l.* to 14*l.*; South Wales steers, 12*l.* to 13*l.*; Scots, of which

there was a short supply, and those of inferior quality, 8*l.* to 10*l.*; milch cows were scarce and much inquired for. Not more than half the number of sheep penned last year were shown at this fair, with a very slack trade, about a fourth being turned out unsold. Down ewes may be quoted 21*s.* to 30*s.* Dorset ewes 30*s.* to 37*s.* Lambs 14*s.* to 25*s.* Wether sheep 27*s.* to 33*s.* The attendance was extremely thin.

TAVISSTOCK FAIR was well supplied with bullocks of all descriptions, and good cow beef fetched 56*s.* per cwt.; inferior ditto, about 50*s.* per cwt. Good fresh steers, (contract meat) from 45*s.* to 50*s.* per cwt., with a quick sale. Mr. Thomas Brown, from the neighbourhood of Holsworthy, bought about a hundred head; Mr. Trickey also bought largely; and, upon the whole, things sold well.

WELLINGTON (SHROPSHIRE) FAIR, Nov. 17.—A very moderate supply of cattle, chiefly barrens, which were eagerly sought after, and fetched capital prices. There was not a great many pens of sheep, owing, in some measure, to the waters being out, which prevented a great many farmers from sending them to the fair. Beef averaged from 5*d.* to 6*d.*; mutton, from 5*d.* to 6*d.*; cheese, from 55*s.* to 64*s.* per cwt.; middling do., 50*s.* to 55*s.*; skim, 35*s.* to 45*s.*; potatoes averaged from 1*s.* 9*d.* to 2*s.* per strike of 75*lbs.*

YEOVIL.—Notwithstanding the dreadful weather we experienced, our fair on Tuesday last was very largely supplied with beasts; those of prime quality, which were not numerous, met ready purchasers at from 10*s.* to 11*s.* per score, but little demand appeared for lean beasts, and consequently great numbers remained unsold. Sheep were plentiful, there being nearly three thousand penned, and all of good quality sold readily at an advance in price of that which has been obtained at late fairs in the neighbourhood, and the greater part were sold. Lambs fetched the best prices, and a considerable number were sold. Pigs were in considerable numbers, and many changed owners at fair remunerating prices. The horse fair was a complete failure, and not a real good horse was to be seen. The rain was incessant, and came down in torrents all the day, which entirely spoiled the pleasure fair.

GLOUCESTER FARMER'S CLUB.—At the meeting of this club last Saturday, Mr. Hyett, of Painswick House, gave a most interesting account of some extensive experiments which he had tried, to ascertain the qualities of nitrate of soda as a manure, which tended to prove its great value when applied to wheat, causing an increase in the produce of about seven bushels per acre; but its good effects were by no means equally apparent upon green crops. There was a large attendance of members, several of whom afterwards confirmed what Mr. Hyett had said, by stating the results of experiments tried by themselves.

FARMERS' CLUB.—The first annual meeting of the Carlton-upon-Trent Farmers' Club took place the other day; and bids fair to rival, if not outstrip, the most successful of its predecessors, in the laudable desire now so generally manifested by the farmers of the present day, to improve not only the agriculture of the country, but the situation of the labourer. The proceedings of the day commenced with a ploughing match, which took place in a field belonging to Mr. Samuel Curtis. The Judges on the occasion were, Mr. James Buttery, Mr. Thomas Drury, and Mr. William Clarke, who expressed themselves highly gratified at the creditable manner in which the ploughing (as a whole), was performed. At three o'clock the members of the club with other friends sat down to an excellent dinner, provided by Mr. Buttery, of the Bell Inn; and the rest of the day was spent in the greatest conviviality.

NEW PATENTS.—Robert Cooper, Pebworth, near Evesham, Gloucester, gent., improvements in ploughs, Oct. 16.—These ploughs are for forming trenches for the purpose of draining land, and by their construction

may easily be removed from place to place. The wheels which carry the plough are placed on a cranked axle, which may be regulated by a screw and screw-wheel, so as to accommodate it to uneven ground or the side of a hill. Just before the shares are two revolving coulters, which cut into and divide the surface of the ground. The distance of these from each other is regulated by a screw passing through both; the depth of their cut may be also regulated by a simple apparatus of socket and pins. Just behind these are placed the coulters for forming the sides of the trench, behind which, and in the same inclination, are land plates for the purpose of preserving the side of the trench so formed. A flat share with a cutting edge performs the horizontal cut, and the mould as it is cut from the trench ascends an inclined plane, and is deposited in an undivided stream along the side of the trench on the right hand of the person driving the plough.

CALENDAR OF HORTICULTURE

FOR DECEMBER.

The weather has become thoroughly wet, and now while we pen this prospective article, snow, intermixed with close rain, is falling in such abundance as to completely float the walks of the garden; the temperature is reduced 10 deg. and as the wind is North East, frost may occur. Under these circumstances, it is almost impossible to write otherwise than conditionally; for if the surface be frozen or covered with snow, nothing can be effected; and on the contrary, if the character of December be rainy, the earth, swamped as it already is, cannot be disturbed.

The transitions of the weather are subjects of deep interest; the laws which govern them are secret, yet we may be permitted to conjecture that *electro-magnetism* is the *motor*, of which *water* is the decomposable medium. Every day inducts us to the knowledge of some fact connected with electric agency, which tends to prove that a connected chain of phenomena is formed between all the natural agents, of which vegetable life forms an important link—thus, to cite the words of a modern writer, “The earth is the matrix or laboratory, wherein the young plant is produced, its food prepared, and its roots finally established; that *fire*, that pure elementary fire, the great agent of induction, attraction, cohesion, and possibly of gravitation, is developed within the surface of the earth, by the electrizing principle of the sun’s rays; by which principle also, *water*, the grand secondary agent, is decomposed, and by its decomposition leads to the most mighty phenomena.”

The discoveries of Dr. Faraday, announced in his volume on the *experimental* researches of electricity, evince the tremendous energy of that agent, the prime source of which is the sun.

It has become fashionable of late, to refer the mutation of the weather to planetary influence; we see error and mystifications in these references, but do not rank among the scoffers at the theory, since we feel assured that—“Electricity, magnetism, or whatever name that principle may assume which pervades and animates nature—which in one shape is seen in men and animals—in another in plants—in a third, in the process of crystallization and stratification; and in a fourth, in organic matter,—is a wonder which renders all things else credible and common. Its subtlety, which reaches from pole to pole, may penetrate one mind from another.” (Sidney Smith).

Thus the elementary essence may, and most likely does, regulate all the phenomena of attraction throughout the universe; and it also governs all those sensations in the frame of men and animals which give indication of atmospheric changes.

If these remarks appear somewhat misplaced and irrelevant in an article on gardening, we may justify their introduction by alluding to the phenomena of hoar frost. One occurred on the 15th November early, and was succeeded by clouds and rain, within twelve hours. The first frost of the year was observed September 18th, and it rendered itself famous by the premature destruction of almost all the prize dahlias. That also passed off with rain, and so did those which were of rather frequent occurrence in October! Why should rain precede rain? and why should the recurrence of three or four of these transitions at the beginning of the winter, indicate almost to a demonstration, that the season will, in its general character, be mild and rainy?

By the way, as gardeners,—we enter our protest against the received arrangement of the season! What is winter but the season of privation of light and of solar influence, to a greater or less extent? and what ought, or can be, in point of fact, the depth or middle of winter, but that precise point whereat the sun ceases to be depressed, and passes into the ascending Zodiacal signs. The first degree of *Capricornus* is that point of greatest depression; and therefore, if the winter quarter comprise three calendar months, the date of its commencement ought to be carried back 6½ weeks; and thus the winter will be made to conform to existing phenomena, for it is the period of torpor; and plants enter into repose about the 7th or 8th of November, when the sun has descended through half the sign of *Scorpio*; and they continue torpid till the sun has ascended to the 16th degree of *Aquarius* (February 4 or 5).

December 21st or 22d is the shortest day of the year, therefore horticulturally and meteorologically, it is the middle of winter, to all intents and purposes; and our operations should, to a great extent, be rendered conformable to solar indications. With astronomical, or civil, calendarial regulations, we interfere not, but only insist on the fact, that winter assuredly commences, and closes, at periods which are equally remote from the point of greatest depression.

We are now, *de facto*, in the heart of winter, for on the first of December there are but 8 hours 6 minutes of day light, the total decrease being 8h. 28m., so that no effective stimulus remains. We are, however, directed in

THE VEGETABLE GARDEN,

To trench and manure ground for spring crops; and if the weather be favourable, these operations are seasonable:—To lay down brocoli plants; but we have before shown, that to plant in trenches, and earth up the stems, causes less labour, while they are more effective operations.

Force asparagus, the smaller varieties of rhubarb, and sea-kale.

Some remarks are called for on the first of these processes; having lately received a manuscript from a friend, which comprises practical directions, from observation, of a mode of forcing, which appears to be very economical and advantageous; they are detailed in the past tense, thus:—

“About the middle of November the leaves of oak

and beech that had fallen were collected, and placed immediately in one of the melon pits; they were well trodden down, and in sufficient depth to allow for settling. When that had taken place, a six inch layer of light, rich, earth was added to the bed, and on that the roots were arranged as thickly as they could be laid. When this was completed, earth of the same quality was sprinkled over the plants, that it might fill up the interstices; finally, more mould was added, so as to cover the whole five or six inches deep. The lights were then shut down close, and mats put on the glasses, for the double purpose of raising and keeping in the heat.

"These remained thus, till the grass began to make its appearance, at which time a little air was given, and when the signs of active growth were perceived, air, in mild weather, was left on all night. Water was given when the soil became dry. The age of the plants was deemed of no moment, provided they were strong enough to produce good grass."

It is added,—"A three-light box would doubtless answer the purpose; and successional beds may be made whenever the yield of the former declines."

Sea-kale.—After the beds are cleared of leaves by a wooden rake, remove every weed, set a marking stick in the centre of each plant, and cover the ground around it with sand, so deep as to permit the rim of the planching pot to sink an inch into it. This done, pile up the litter of leaves or dung a yard in extent every way; and thus, force in detail according to the quantity required.

Peas and Beans earth up, if the tops are sufficiently advanced; but this implies dry soil, not mud. A good substitute, and great protector, would be sawdust, or, that and ashes, laid against the stems as a sort of ridge on each side; screenings of furze are also good, because they furnish vegetable matter, after having guarded the plant from slugs and cold.

Celery.—Place a pair of ridge-boards over the tops, to shoot off rain, and afford protection from cold.

Cauliflower-plants, under glasses, or in frames, ventilate as much as is consistent with safety, but cover every night closely; and throw mats or canvass over the glasses in very severe weather. Protect thus all other plants in frames.

FORCING DEPARTMENTS.

Retain a gentle temperature, just protective, in every house, according to its object.

Hot-house ornamental shrubs require 45 to 50°; *Pine-Apples* 60 to 65°; *Mushrooms* about 50° of Fahrenheit; but never suffering there to flag, for once torpid, they fly up to fruit when re-excited. The earlier of the foregoing remarks apply to the philosophy of forcing, which presumes that solar advancing power should always be the index, and take the lead. At Christmas then, increase the action of the flues 5-10 degrees; but even in March, few stove plants demand a higher degree than 60 to 65° by artificial stimulants. Water will be at hand, and of a corresponding temperature, to be given as growth requires.

Glaxinia and the *Gesneræ* are among the choicest of stove plants; place some pots of them upon railed stands, over that part of the flues where not violently heated; and give very little water till the shoots appear; then re-pot them in pure black heath soil, well drained; and when growth is established, be more liberal with water.

Vinerias may be forced directly; but the heat applied ought to be preparatory, say 45° to 50°, till the shortest day. At first, clean the stems, removing

loose fibrous bark, with any blunt tool; then brush them over with a thin paste of soft-soap and flower of sulphur. Syringe the stems freely after the lapse of three days, when the soap will be sufficiently set. Sprinkle the floor gradually, inducing a general moist condition of the house; and as soon as days lengthen, raise the atmosphere by fire to 65°, syringing twice daily, and soaking the ground with water. With this treatment, by middle of January, the rods will exhibit the fruit they contain. But ere then we hope to meet the reader again with appropriate facts before our eyes.

Prepare to graft Vines. It is known that a prolific shoot of last spring—one, we will suppose, with three bold eyes upon it, if cut off before it is in any degree excited, and kept—as grafts generally are—the end in moist earth or sand, will unite itself to a corresponding shoot of a *forced vine*, that is just in its first stages of growth. If then a person be curious to have three or more sorts of grapes on one spurred red, he is only to secure a cutting or two of each sort required, at the time he lights the fire, and to retain such shoots alive by moist earth. To do justice to the plant and its patron, we will cite Mr. Gowan's own directions, for which in 1834 he received the silver medal of the Horticultural Society of London.

"Select a *scion* with one eye, and cut it in the form of a wedge. For a stock, select a shoot of the preceding year, about the same thickness as the scion, and cut it over a little above the second eye from the old wood. With a sharp knife cut it down the centre, nearly to the old wood. Out of that half of the stock which is opposite the bed, pare with a penknife as much as is necessary to make it fit the cutting on the sides of the scion. Insert the scion with its eye opposite to that left on the side of the stock. Tie it up, and clay it over in the usual manner, with this difference, that you cover nearly the whole of the scion with the clay, leaving only a small hole for its eye. Tie a little moss over the clay, upon which sprinkle a little water occasionally, to keep the whole in a moist state for some time."

"With regard to the time of grafting, I find that it will succeed pretty well when the stocks are about to break into leaf; but I think there is more certainty of success when the shoots of the stock into which the grafts are to be inserted, have made four or five eyes of new wood. By this time the sap has begun to flow freely." He adds,—"Leave the young shoot, and allow it to grow for a few days, when it should be cut off, leaving only one eye and one leaf to draw sap to the scion till it be fairly united to the stock."

GREENHOUSE.

Give all the air absence of rain and of actual frost will permit; but however sunny a day may be, close every sash by 2 o'clock p. m., that the house may retain its general warmth. Cover front lights with mats, well secured, to protect from sharp frost and piercing winds. Attempt nothing by fire beyond a degree or two above 32° of Fahrenheit, unless it be the steady object to keep up a growing warmth from October to spring. This plan is at once expensive and hazardous; for it requires punctual uniformity—admitting no transitions; and a person gains little by retaining verdure during a season of gloom, cold rain, and snow.

Better far, to stock the windows of inhabited rooms, than to urge forward the tenants of a remote, seldom visited greenhouse, which, after all is done, would enjoy more robust health if they were permitted to repose in security.—Nov. 19.

REVIEW OF THE CORN TRADE DURING THE MONTH OF NOVEMBER.

Although a considerable portion of the last month was wet, and not particularly favourable to out-door agricultural labour, still very great progress has already been made in field operations. The winter seed wheat, with very few exceptions, has been got into the ground, we may say universally, in the best possible condition; and the young plants, even thus early, are beginning to assume all the appearances of real luxuriance. The contrast betwixt the present season and the same period in 1839 is very remarkable, and if we may judge from present appearances, no complaint can exist during the approaching spring of the winter wheats being thin in the ground, and sickly in their appearance, as was the report of the last spring season. The working of the fields for the spring seeds is also progressing very favourably, and a few weeks longer of moderately open weather will now only be requisite for the favourable conclusion of the winter field operations. This necessary and beneficial employment of the agricultural labourers has been, however, attended by a deficiency in the amount of house labour, and the supplies generally of British grain, in all the great markets of consumption, have been consequently smaller than, under other circumstances, they would have been; but from this cause we may predict a considerable increase in the farmer's deliveries of grain during the remainder of the current year. The farmers, like all other classes in our society, require money for their necessary expenditure towards the close of the season, and they generally have no other resource for this purpose than the produce of their fields, very few of them, indeed, after two deficient crops, having much money in store. The supplies of wheat in particular, therefore, must soon increase, at all events, in proportion to their late deficiency, and then the value of this article will find its real level. During the month of November the deficiency in the home supply of wheat, however, was most fully made good by large quantities of foreign free wheats having been thrown on the different large markets of consumption for sale, and the demand has certainly not been in proportion to the supplies, at prices weekly drooping, and the future prospects of the wheat trade becoming every market day more uncertain. The decline in prices, also, no doubt has in part been occasioned by the dampness which the state of the weather has in many instances imparted into the new English wheats; and therefore, although the decline in the monthly prices be considerable, still the actual value of fine wheats has not fallen in proportion. This fact is more observable in the state of the flour trade, the prices of which have not been subjected to the same depreciation which has taken place in wheat; nor has any perceptible decline occurred in the value of the best quality of bread during the month which has just now been brought to its close. As soon as the weather becomes colder and more dry the condition of British grown wheat must materially improve, and then little doubt can be entertained of the farmers obtaining fair and remunerating prices for their property. The flourishing state of the empire, in every department of its industry, renders this pre-

diction the more certain; for all classes are more or less employed at reasonable wages, and the consumption of all the necessaries, and of many of the luxuries of life, rather is increased than the contrary by this favourable state of things generally. We have often had occasion to remark, that agricultural distress universally is followed by similar bad consequences amongst all classes, whether they be engaged in commerce, in shipping, or in manufactures; and agricultural prosperity, on the contrary, is always attended by the greatest advantages to the commercial and productive interests, in whatever channel they may be employed. That the last grain crop was a most abundant one, quality taken into consideration, throughout the United Kingdom, becomes every day more apparent; and as soon as the farmers are enabled to supply the consumption in a more liberal manner than they have as yet been permitted to do, the entire population will reap their full share of the benefits which must attend the agricultural interest, in consequence of the increased production of their fields. The science of tillage is rapidly gaining ground, and the means at present adopted by the Royal Agricultural Society, and by numerous other district associations, must now annually improve what we may call the philosophy of agriculture. During the last quarter of a century the progress made in agricultural improvement, under circumstances far from being favourable, has been immense. The same quantity of land now produces in quality and quantity in many instances one half, and in no place less than one quarter, more in amount than the same land did twenty-five years ago; and it is not possible to doubt that the increase in production, even from those fields which already are considered to be in the highest state of cultivation, will be still far more considerable, during the same period of time to come. The wealth of the empire must, therefore, annually be increasing, even by the fields which are now yielding abundant crops; but the cultivation of vast and extensive districts of land, now in a state of desolation and unproductiveness, must, in time, vastly add to this real national wealth. In these at present useless districts, agricultural pursuits will annually regain lands of the finest qualities from water, and from other agricultural obstructions, and will found her prosperity in the reclamation of these lands from, we may say, the wilderness. The prosperity of agriculture there will be followed by the formation of additional channels for commercial and manufacturing operations, and, as has been well illustrated already in Scotland, towns will be converted into cities, and villages into populous and manufacturing towns, by the progress made in, and the wealth created by the cultivation of waste lands, of morasses, and of the banks of rivers, bays, and lakes. The superabundance of money will find vent in these operations, and from them the surplus population will receive abundance of additional productive labour, and their transportation to the colonies will be then rendered unnecessary. To produce these great results, however, legal protection to the capital, talent, and industry, employed in agriculture, is

absolutely necessary ; for, without due encouragement, they cannot be undertaken to any great extent, and this is the great reason why the corn laws should be rendered still more stringent than they are at present. It is not for any particular, but for the universal good, that they should be maintained in a most effective state of operation. That no nation should employ any other in the production of food, so long as it can be grown at home, is a truth which admits not of any demonstration ; indeed it is an axiom, and so long as we have money, and unproductive land, it is surely much more reasonable, that we should bring these at present waste lands into cultivation, and supply with their produce the deficiency in our own growth,—if any deficiency actually do exist,—than that we should remit our money to foreign nations, and pay them for producing a surplus quantity of those articles which we have in great abundance the means of raising from our own fields, and from the productive labour of our own, perhaps at present, only partially employed population. The money remitted abroad for grain, and for various descriptions of manufactured agricultural produce, never again returns to this country. In fact it is a great national loss ; for experience, during the whole of the current century, has fully established the truth, “*that our export trade receives no increase from large importations of foreign food.*” On the contrary, the money remitted in payment for foreign grain disarranges our monetary system, reduces the value of every description of property, puts a bar for a time to every description of improvement, and eventually is the means of reducing the wages of labour, and of throwing many thousands of industrious families entirely out of employment. These truths now are so perfectly understood, both by those who pay, and those who receive wages, that during the past month, the agents and orators of the anti-corn-law society have been enjoying a perfect holiday. They cannot get a meeting approving of their dogmas,—for they deserve not the name of doctrines—and the money of the society is consequently expended to very little purpose. British operatives do not wish particularly to be placed on a level with Polish serfs : and yet these are the great, indeed the only advantages which are promised to our labouring classes from the repeal of the corn laws. The reduction of bread must necessarily be followed by a more than proportionate reduction in the value of the wages of industry ; indeed, the prospect itself of cheap bread has already occasioned in some of the manufacturing districts an attempt to reduce the wages of labour by, from ten to fifteen per cent. ; and by an accurate attention to these incipient signals, the people generally are perfectly well qualified to estimate the disastrous consequences to their future well-being, which must be the attendants of cheap bread, occasioned by importations of foreign grain, duty free. For the foreign wheats imported during the last fifteen months, many millions sterling in hard money have been paid to foreign land proprietors, which is now useless to the British people. Had circumstances permitted the same amount of specie to have been paid to the corn growers in the United Kingdom, this money would now have been circulating amongst the manufacturing and operative classes, and adding to the wealth of the empire, by giving additional employment to the people. Two other crops however, as abundant as the last one has

been, will, to a certain degree, restrict foreign importations in future, for some time at all events, and tend in a material degree, to retain within the empire large sums of money, which will afterwards be embarked in the formation of additional railways, and in numerous other internal improvements. Before the close of the present corn season, the prosperous state of agriculture must begin to spread great benefits throughout the land. The moderate, and yet remunerating prices, which the farmers must from time to time receive for the produce of their fields, will be circulated amongst various commercial and manufacturing classes, or be applied to the farther improvement of the land ; thus sowing the seeds of future prosperity, and paving the way for future benefits to the people at large. The farmers and land proprietors receive far less of these advantages themselves, than any other class in society. We hear of, and indeed daily see numerous individuals who have made princely fortunes in trade, but no person can acquire anything like great wealth by the sole cultivation of the fields. Industry, talent, and capital are nowhere so badly paid, as they are when embarked in farming pursuits, and commercial men and capitalists eventually reap the chief portion of the profits of agriculture. To the monied interest, the prosperity of agriculture opens, at present, a wide field for the profitable employment of their surplus wealth. It offers to them great temptations to embark their money in the improvement of the soil. When they see a fair chance for obtaining for their money a good annual income, by laying it out in the improvement of waste land, they will eagerly avail themselves of those channels for its employment ; and in this way eventually must the prosperity of agriculture tend, in an eminent degree, to bring into cultivation every acre of land which is at present in a state of nature, and also add to the wages of labour and to the general comfort of the entire population. These advantages will result from the moderate protection which the present corn laws give to the agricultural interest, but from their repeal the most disastrous consequences will speedily follow. Large tracts of land will go entirely out of cultivation, and one-half of the people at least will be thrown eventually out of employment. Besides, foreign corn producers will only send to us their surplus crops, so long as we have money to pay for them, and not one year or month longer. Idleness and distress will then be produced by poverty, and merry England will soon afterwards be converted into a land of tears. These laws are imperfect in some respects, but in others they are admirably calculated for promoting the general interests of this great empire. When supplies of foreign wheat are rendered necessary by unfavourable seasons, they virtually repeal themselves ; and when the foreign importations are sufficient for the occasion, they then come back again into operation in their protective character, and place an effective bar to the farther entry of foreign grain for home consumption. During the last year and a half, their perfection in these respects has been well illustrated. The seasons had caused a large deficiency in the growth of wheat, in particular, in the years 1838 and 1839, and an importation to the extent of three millions of quarters was the necessary consequence of this circumstance. By this foreign supply, however, the revenue suffered rather seriously, for a charge of fifteen shillings on each quarter entered for home use should have been made by

the treasury; and this would not have been more than the direct and indirect taxes paid by our home producers on every quarter grown by them. It would have been cheerfully paid by the foreign land proprietors for the use of our corn markets, and not one penny of it would have fallen on the British consumers. Two millions sterling on foreign wheat alone might thus have been placed into the treasury, which, in its present deficient collections, would have been of some public consequence. This, however, is but a minor evil when compared with the vast sum of money, which this importation of foreign wheat has alone abstracted from the circulating medium of the country. The existing scarcity of money is entirely occasioned by this circumstance. The Bank of England is compelled to reduce their issues of paper money, and the existing want of confidence amongst the monied interest has its origin in this cause. It has rendered money scarce and dear; but as the exertions of our farmers, and a favourable corn season, must for a time, at all events, prohibit any farther entry of foreign grain for home consumption; it may be presumed that farther importations will be, at all events, limited during the same period, and then the money market will again speedily right itself, and restore every interest in the country to a sound and healthy state. The value of money, the value of the produce of land and of trade, and above all, the value of the wages of every description of productive labour, must continue to be regulated by the quantities of food produced within the three kingdoms. When they are sufficient for the consumption, every interest in the empire flourishes; but when the elements render the crops in any way deficient, and foreign importations are thereby rendered necessary, universal distress ensues. To support the corn laws, therefore, and to render them protective to our home agricultural operations, is the sure and only way to increase the general prosperity, whilst the repeal of those laws would be productive of consequences in every way destructive to the best interests of the population. As soon as the farmer's field operations at this time of the year are concluded, their supplies of wheat in the different markets of consumption will become more adequate to the consumption, than they have been since the last harvest was brought to its close, and money will then become more plentiful amongst them. The average prices have fallen since our last publication considerably under the general expectation; but still the value of wheat is remunerating to the producer, and after the turn of the year, its improved condition will command higher prices, than can at the present moment be obtained for it. In the meantime, foreign free wheat has been brought forward into the market for general consumption in considerable quantities, and it has commanded fair prices. These supplies now, as they cannot be increased, so long as the import duty remains sufficiently protective, must speedily cease to influence, in any material manner, the value of wheat generally, and then supply and demand, home growth and home consumption, alone will regulate prices. By the consumption of the foreign free wheat, which has been months ago paid for in the precious metals, a large sum of money will be once more placed into circulation; and the national means for the promotion of farther internal improvements will thereby be increased. Agricultural prospects, on the whole, are at the present moment cheering, and the community soon must reap the benefits

of increased employment, arising from the fair value which the farmers will receive, during the remainder of this corn season, for the last wheat crop. If any drawback exists at the time this number of the Farmer's Magazine is going to the press, to the fair prospects of the farmers, it has been created by the large quantity of rain which fell towards the middle of last month. It certainly was injurious to the condition of a proportion of the wheat of last harvest, brought towards the close of November into the markets for sale; and the waters on the low lands, sown with wheat, may also have been hurtful to the new wheat plants in these situations. This latter circumstance, however, can only be a very partial evil if it exists at all; for a few weeks of favourable weather will speedily restore their healthy appearance, and again encourage the hopes of another abundant harvest.

The markets have been, considering the manner in which the agricultural labourers have been employed in preparing the land for the reception of the winter seed wheats, and for other purposes during the last month, fairly supplied with barleys, the quality of which generally has been fully equal to the expectations previously entertained of it. Still the demand is unusually limited, and sales can only be effected at regularly declining prices. It is unfortunately, perfectly established, that less malt is now manufactured than was done a year or two after the duty on it had been reduced from 35s. to the present charge; and, taking the increase of population into consideration, an abundant proof is thereby afforded of the injurious consequences of the present high rates of duty, and of the restrictions which the excise regulations impose on the manufacturers of this most necessary article to the well being of the community. The amount of these duties could be far better, and far more profitably for the revenue, collected at one-half of the present public charge per quarter on the maltster; and by a material modification in the present restrictions which are placed on his science. Duty, under the existing system, is only collected, in round numbers, on five millions of quarters of malt; and, if the whole of this quantity were converted into beer, the allowance to each person in the empire would be trifling indeed. If the same amount of taxation was imposed on ten millions of quarters of barley instead of on five, still the consumption would be too small to be consistent with the welfare of the agricultural interest, and not equal in any point of view to the real wants of the people. This increase, however, would be the certain and smallest result of the reduction of the present rates of duty by one-half, and would add largely to the national wealth. It would enable millions of the people, who are at present either entirely deprived of, or but sparingly supplied with this necessary article, to increase their consumption of it; and it would require, at least, one million and a half to two millions of acres of land to be brought into cultivation for its production, in addition to the fields now devoted to this branch of agricultural labour. This is a subject of vast importance to the general prosperity; indeed, there is not one possessed of nearly the same national consequence. The increased wealth, which it would from necessity create, would do far more than provide for the addition of expense which the extended consumption of beer would occasion; and the revenue would be imperceptibly improved by the same cause. The tax would be less burdensome, and would be much more cheerfully paid; and the advantages in a moral point of view, would be nearly boundless. From

the duty-paid malt now annually manufactured, the quantity of beer produced cannot average half a barrel for each of the inhabitants of these kingdoms; and 18 gallons in 365 days is surely a most paltry allowance. Yet such is the state of the malt trade at the present time, and such must it continue to be so long as the malt duty is obtained from the present unnatural mode of its collection. The same sum may be placed into the Exchequer by reducing the duty to 10s. per quarter. Two millions of acres of land, at present unproductive, will afterwards be brought into cultivation by the increased demand for barley. Thirty shillings annually for each of these acres will be added to the rents of land, and four times that sum to the present wages of the people; the comforts of the lower orders will be increased materially by the same cause; and the want generally of employment will not then be used as an argument for the transportation of a valuable, because enterprising, portion of the people to the colonies, or to foreign nations. The restrictions imposed by the excise laws on the manufacturers of malt, are likewise injurious to the agricultural interest; for the quality of the barley is not sufficiently allowed for, nor is the state of the weather taken into the consideration of the exciseman. Whether the barley be produced in a genial or in a northern climate, whether the land on which it is grown be of clay or of sand, whether the weather, during the period of manufacture, be warm or cold, it is necessary under the present legal restrictions, for the maltster in all cases to apply exactly the same rules to his operations. To charge the duty on the barley when it is placed in the malthouse, and to permit the maltster to use his science in its manufacture, would remedy every objection to the present imperfect system, and malt of much better quality would generally be produced. The operations would then be conducted so as to produce those qualities which will best suit the purposes of the different consumers of that most necessary article, and a material saving in the expense of the collection of the duty must be the natural consequence, without any decrease in the amount of the revenue at present collected. An alteration of this description should be pressed on the legislature annually, by the friends of agriculture in the two houses of Parliament, until the evil be abated; for at present it does great injury, and is not attended by one single advantage. The high duty charged in England on British-made spirits is another injury inflicted on the growers of barley, and is not attended by one solitary advantage. It is likewise at present the principal cause of many crimes, under which the empire suffers; it is the parent of smuggling, and all its concomitant evils; and its reduction to an equality with the duty now payable on home-made spirits in Scotland, would improve the revenue,—would increase the consumption of British grown grain,—would put limits to the prevalent vices of drunkenness and teetotalism, and would raise up temperance on a really solid foundation. In Scotland, in consequence of moderate duty, the trade of smuggled spirits is nearly entirely suppressed; whilst in England, the half of the spirits consumed is supplied by the smuggler's trade, and is manufactured from foreign agricultural produce. The quality also of these smuggler's spirits is of the worst description, and is in the extreme injurious to the health of the consumers, whilst home-made spirits, the genuine extract of British grown barley, are light and wholesome in comparison, and are constitutional because they are national. Ten millions of gallons and upwards of

spurious brandies and Hollands are annually smuggled into this country, whilst duty is not paid on one-fifth of that quantity; and if the duty actually collected on foreign spirits was divided equally amongst the quantity of the same description actually consumed, it would not average 4s. per gallon. This is a great injury done to the British distiller, for it is not possible for him to enter into his own markets on equal terms with the produce of the foreign distiller. But this is not the only difficulty to which he is subjected,—for the excise law says, that rectified British spirits shall not be retailed, unless they be seventeen under proof, which deprives them of their natural flavour, and renders them less palatable than they otherwise would be. British brandy, if rectified at proof, would be of as fine flavour, and far more wholesome, than the finest French brandy is that is usually imported. This is perfectly proved at the rectifying establishment of Mr. Stokes in King Street, Snow Hill, or at that of Sir F. Booth and Co.; but then the law says that they must reduce it to little better than the strength of Irish punch, before they are permitted to send it into general consumption, and this renders its quality considerably inferior to what it would, under other more patriotic regulations have been, and gives additional encouragement to the illicit importation of foreign spirits. By the reduction of the spirit duty in England, to a level with that charged in Scotland, smuggling would be entirely suppressed, and the revenue drawn from these sources of spirit taxation would be considerably increased. The expense of the coast guard would be saved, and that alone amounts to little under one million sterling annually. At all events, British rectifiers have a right to expect that all descriptions of spirits, whether they be French brandies, or Dutch gin, be reduced to seventeen under proof before they be admitted into consumption in this country, or that they themselves be permitted to manufacture their spirits, and to send them into consumption at that strength which would suit best the palates of the consumers, and would enable them to use their science, talent, and capital to the best advantage in their rectifying operations. Under these unpropitious circumstances it is little wonderful that difficulty exists in making sales of barley, and that prices should be gradually declining. It is perfectly established, that the manner in which the barley tax of nearly twelve millions sterling annually is collected, limits very materially the consumption of barley; and, when the crop of that article is large and of fine quality, as it is this season, the demand for it must continue to be in a very depressed state, until the system be radically altered, and until common justice be administered betwixt our home and the foreign growers. Quantity however this season, will in some respects make good to the British farmer the deficiency in value occasioned by a restricted demand; and, on the whole, he has, at all events, the prospect of being fairly, though not amply, remunerated by his barley crop for his capital, labour, and science, embarked in this department of agriculture.

The supplies of oats in all the large market towns of consumption throughout Great Britain, have, from that portion of the United Kingdom, been small during the last month; but from Ireland they have been uncommonly large for the time of the year, and consequently the supply has been more than equal to the demand, and declining prices have been the result. In the latter kingdom the crop of this article has been very abundant, and the quality of the best description. This is the effect of the progress of agricultural improvement there, and of the addition

which is now annually making to the quantity of land under cultivation. When we reflect on the poverty and nudity of a considerable portion of the Irish people, and when we reflect on the absolute necessity, under the existing state of society in that country, of transporting many thousands of families annually to the colonies, or to the United States of North America, for the purpose of obtaining for them there a wretched subsistence, the stronger becomes our conviction that the employment of them in bringing forward into tillage at home millions of acres of rich land, at present in a state of perfect nature, would increase the real wealth, and consequently the power and prosperity of the British Empire. These improvements are just beginning to dawn on the community, and, under proper regulations, they must annually increase in consequence, until the entire population find abundance of productive labour at home, and the necessity of emigration be entirely removed from amongst them. The prosperity of all classes of society mainly depends on the prosperity of agriculture at home. It is chiefly from this source that manufacturers are enabled to pay fair wages to those employed by them; and as agriculture progresses in Ireland, no power whatever can prevent a proportionate progress in trade, mining, and manufactures of all descriptions there, so long as she can find profitable markets for the sale of the surplus of her agricultural produce. By the existing protection which the corn laws hold out to her farmers, the markets in Great Britain take off everything which she can at present spare, and for which the payment is adequate to the property exchanged, and perfectly certain. This is the chief cause of the very rapid progress which is now making there in the science of agriculture, and in the tillage of land previously waste and useless to human nature. It is the profit yielded by past improvement, which encourages greater exertions in the same way, and not many years can now pass away, before the banks of her numerous bays and rivers will be secured from the waters, and her morasses will be rendered valuable oat-fields by drainage, and by the employment of capital in their proper cultivation. The corporation of Belfast is setting a very praiseworthy example to the rest of the country in this respect. They are rendering the Channel of the beautiful Loch, which bears that name, much deeper than it is at present, with a view to the extension of the commerce of their flourishing city; and by this operation they are reclaiming from the waters many miles of land, both in the county of Antrim and in the county of Down, which before long will either be builded upon for increased manufacturing establishments, or will be converted into cornfields, for the supply of the home and British markets of consumption. Early the next year, the channel which leads up to the city of Wexford will come under similar operations, and the people will reap similar advantages from the completion of these improvements. Even in that small spot, fifty thousand acres of the best description of land may be reclaimed from the banks of the Slaney, at an expense considerably under five pounds for each acre, and worth, at least, a rent of two pounds an acre annually afterwards. We need not mention the banks of the Shannon,—for everywhere throughout Ireland do numerous sources of real wealth exist, and confidence and capital alone are wanted to render them most valuable to the Irish people. Had we not these large supplies of oats from Ireland, they must have been imported from the continent of Europe, for the cultivation of them in Great Britain has not for years now been nearly

equal to the consumption. As matters are, however, Great Britain reaps all the advantages from the Irish oat crop, which she could have done, had it been produced within her own fields. So long as Ireland can send the liberal quantities which she has lately done to the British markets, so long must foreign importations remain almost prohibited, because unprofitable, and the money paid for them by the consumers must remain in the British Empire, where its circulation will be continued, we may say in an under current, and will be giving additional wages to the people, either by an increased consumption of manufactured or of agricultural products, or by further internal improvements. Great Britain therefore enjoys her full share of agricultural prosperity in Ireland. The money paid by her for Irish oats remains in her own empire, and is never out of circulation amongst her own inhabitants, increasing productive labour, maintaining, if not improving, the wages of labour and industry, and thus adding to the legitimate consumption of all the necessaries of life. Several millions sterling are thus retained within the empire by the production in Ireland of oats alone, which, under other circumstances, it would have been necessary to remit to foreign nations for foreign supplies of this article. During the last two corn seasons we have had but too much practical experience of the evil consequences of an almost unlimited importation of foreign oats, at duties by no means protective to our home agricultural pursuits; and these importations, in conjunction with those of wheat, beans, and pease, have solely occasioned that large and injurious transmission of the precious metals abroad in payment for them, which has rendered money scarce and consequently dear—which has disarranged our monetary system, and has been on the point of causing a revolution in the value of every description of property, the wages of industry included. The last large and productive crops will partly, however, remedy this evil, and the repetition of plenty at home, for a season or two, will cause its entire removal.

For the season of the year, we have been rather plentifully supplied in every market with pease and beans, but the demand likewise has been considerable, and the reduction in the value of neither of these articles has been material. Their consumption, chiefly in the midland districts, for mixture with wheat for grinding purposes, continues annually on the increase, and will render additional supplies of them absolutely necessary in each succeeding corn season. The prices at present obtained for each of them are fully equal to the expense attending their cultivation, leaving a fair profit to the farmer, and not oppressively high, in any degree, to the consumer. The general opinion entertained at present is, that they will continue to command remunerating prices during the remainder of this season; and hopes are justly entertained that more attention will be annually now paid by the growers to increase the quantity, and improve the quality of both these articles in the future production of them. The potato crop has proved in quantity a very abundant one, and generally in quality the crop of the last season has never been surpassed. Prices continue to be exceedingly moderate, a circumstance of the greatest importance to the consumer, and to which, from the abundance of the crop, the grower can very well afford to submit. A plentiful potato crop is inestimable in national importance; indeed, in real usefulness to the great majority of consumers, it probably now yields not even to that of wheat itself, and the produce of the last season has been so great, that it must continue to render the supplies of it, at

all events, fully equal to the largest consumption, until another harvest of it succeed that now concluded. There is scarcely any evil in nature which is not attended by some advantage or other. If the November rains have been, in any way, hurtful to the winter wheat plants, which we scarcely think they can by any possibility have been, still they have been, in all respects, beneficial to turnips, and to every description of green cropping. Pasturage in particular has been much improved by them, and there is at present, consequently, abundance of provender for the live stock, with a favourable prospect, in the same respect, for the early months of the coming year. We have, therefore, only to conclude our November report of the present condition and future prospects of the Corn Trade by stating, that few complaints can, under existing circumstances, be made, either by agriculturists themselves, or by the consumers of their products. On the contrary, we entertain a strong conviction that the prosperity of all classes throughout the United Kingdom must yet be materially increased by the last favourable crops of all descriptions, as they are brought progressively forward into the markets for sale. British and Irish farmers alone, instead of the proprietors of foreign lands, will receive payment for the consumption of food, at all events, till next summer months arrive, and that money will immediately afterwards be put into general circulation amongst all the industrious classes of our own population.

The intelligence received respecting the state of the corn trade abroad during the month of November has not attracted, in any material degree, the public attention. The prices of grain and of pulse, in all the foreign grain districts, have continued as usual to be regulated by the quotations of them transmitted from Mark Lane, and the demand, everywhere, was exceedingly inanimate. From the Baltic, and from the German Ports without that sea, the advices received are in due course of post. Prices, at that time however, were rather too high for the encouragement of speculative purchases to any great extent. At Dantzic, and some of the neighbouring markets, attempts were made to purchase wheat, with a view to this market when the navigation again becomes free, and in the interior of Poland in particular, some business had been already done for delivery next summer. The purchasers are influenced chiefly to enter again into grain speculations, by the probable profits which they may derive from the reduction of the existing protective rates of duty, now levied on the entry here of foreign wheat for home use. They think that a chance does exist that the same good fortune, in this respect, may attend their speculations next summer, which attended their operations during the last. They look for future profits from a reduction of the wheat duty, and not from any material advance in the value of that article. That this effect can be produced under our corn laws, without any violation of the rules of fair and honorable commerce, the experience of past years has fully established; and that it will be done again next summer is equally certain, unless the lowest duty payable on wheat at all times, and under all circumstances, be increased to 10s. or 15s. per quarter at least. We do not mean that our markets should be at all times open to the consumption of foreign wheat, but that when the average price of it here reaches 73s. per quarter, 10s. should be the lowest import duty. As it is, however, pur-

chases of foreign wheat are already making for the chance of consumption in our markets during the next summer months, and they probably will be increased very considerably before the arrival of that period. In July and August, when the supplies of British wheat become small in all our markets, a few speculative purchases of the farmers' runs at high prices can apparently enhance the value and reduce the rates of duty, and these purchases can be made without any great sacrifice of money in their resale. To save at least 20s. per quarter on foreign wheats, in the duty, is a strong temptation to the speculators; and that means can be, and consequently will be, adopted next summer to produce this effect, the landed interest of the United Kingdom may rest perfectly assured. The foreign proprietors of wheat are also wide awake to the probability of reduced duties here, and they charge the buyers with prices high in proportion to these expectations. Thus they place into their own pockets money which ought to be placed in the British treasury, and the system therefore becomes injurious to the community, and in this respect an alteration in the corn laws becomes necessary to their more perfect working.

From the United States of North America the letters are not of a particularly late date, nor is the information received in any of them of much importance to the grain trade here. The complaints in all the provinces of that Republic, were as usual rife against our corn regulations. The landed proprietors and farmers complain that they could forward to us annually wheat and flour to the value of forty millions of dollars at least, and that they are deprived of this market for the consumption of the surplus of their wheat crop, because our laws give our landed interest a preference over that of America. The American ship owners complain that they are deprived of good freights, which they would obtain, was the corn trade rendered entirely free; and the American agents and merchants complain that they are deprived of many commissions and of large profits in their trade, by similar courses. We have, however, neither the means nor the inclination to encourage foreign agricultural pursuits at the expense of the gradual improvement of our own soil,—nor can we afford to give employment to foreign agricultural labourers, which our own are perfectly competent to perform. There was consequently little export demand at these dates in the United States either for wheat or flour, and their value therefore depended then chiefly on the home consumption, and on the usual shipments for our West India colonies, and other places to the southward. From the south of Europe and the Mediterranean, the information received during the month, respecting the corn trade, is entirely devoid of interest in this country. The crops everywhere there have been large, and the want of profitable markets of consumption was therefore rather seriously felt by all the proprietors of land, and of agricultural produce. No purchases, to any extent, we believe, had at the latest dates been made in any of the ports of the Black Sea with a view to the English market, though it is not unlikely that, when the navigation of that sea again becomes practicable, some speculations may be entered on in expectation of profit occurring from the probable reduction next summer in the present rates of our import duties. The distance is, however, too great, and the passage too uncertain, for the embarking largely into wheat speculations in these parts.

CURRENCY PER IMP. MEASURE.

Nov. 23.

	Per Qr.	Per Qr.
WHEAT, Essex and Kent, red ..	04 06	White... 08 72 74
Suffolk and Norfolk	02 65	Do 09 70 72
Irish	50 60	Do 60 64
Old, red	60 68	Do 70 74
RYE, old	36 38	New.... 41 43
BARLEY, Grinding 80 32 34 Malting 38 40		Chevalier 40 42
Irish	25 27	Bere... 24 25
MALT, Suffolk and Norfolk	64 70	Brown... 58 60
Kingston and Ware	68 70	Chevalier 68 70
OATS, Yorksh. & Lincolnsh. feed ..	27 30	Potato... 29 32
Youghall and Cork black	20 21	Cork, white 22 25
Dublin	22 23	Westport 22 25
Waterford, white	21 22	Black... 20 21
Scotch feed	25 26	Potato... 25 26
Clonmel	23 24	Limerick 22 24
Londonderry	28 —	Sligo... 22 23
Newry	23 24	
Galway	19 20	
BEANS, Tick, new	40 42	Old 44 48
PEAS, Grey	58 40	Maple... 40 42
White	58 40	Bollers. 44 46
SEED, Rape..... 30l. 32l.		Irish.... 28l. per last.
Linseed..... 41 46		
English Red Clover, flue, 70 80		00 per cwt.
White	66 68	74
Mustard, White 11 12		brown 18 20 per bush.
Tares, old 64 —		new 80 90 per qr.
FLOUR, Town-made 60 —		Suffolk 46 48 pr sk. of 230 lbs.
Steckton and Norfolk, 48 50		

FOREIGN GRAIN AND FLOUR IN BOND.

WHEAT, Dantzic	56 60
Hamburg	50 53
BARLEY	22 24
OATS, Brew	24 27
BEANS	40 —
PEAS	36 40
FLOUR, American, per brl.....	28 — Baltic .. 28 —

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, Nov. 13th, 1840.			AVERAGES from the corresponding Gazette in the last year, Friday, Nov. 22, 1830.		
	s.	d.		s.	d.
WHEAT	62	2	WHEAT	69	0
BARLEY	35	7	BARLEY	43	1
OATS	22	11	OATS	26	5
RYE	36	8	RYE	37	4
BEANS	44	8	BEANS	46	1
PEAS	42	0	PEAS	41	1

IMPERIAL AVERAGES.

Week ending	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Oct. 9th ..	64 0	36 5	23 9	25 9	44 2	42 10
16th ..	63 3	36 5	23 8	25 7	44 10	43 5
23rd ..	62 5	36 1	23 1	26 11	43 6	43 3
30th ..	61 7	35 8	22 5	25 7	44 10	43 0
Nov. 6th ..	62 1	34 9	22 8	26 3	43 7	43 4
13th ..	62 2	34 8	22 0	25 5	44 0	42 0
Aggregate Average of the six weeks which regulates the duty.....	62 7	35 7	22 11	26 7	44 2	43 0
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London	24 8	9 4	18 9	15 6	3 6	5 0
Do. on grain from British possessions out of Europe.....	5 0	0 6	2 0	3 0	0 6	0 8

SEED MARKET.

Nov. 23.

A few small lots of fine English Cloverseed have lately been sold at high prices, but the trade can scarcely be said to have commenced yet, and it is therefore difficult to give quotations at present. In other descriptions of

Seeds there is no particular variation to notice, excepting that Canary again fell considerably in value to day.

Linseed, English, sowing 66 60	crushing 48 55 per qr.
Baltic	
Mediter. & Odessa 48 56	large .. 38 40
Hempseed, small..... 24 36	old.... 18 — per cwt.
Coriander..... 10 16	white... 12 13 pr. bush.
Mustard, brown, new .. 16 21	10 18
Tarnip Seed, new Swedes — —	10 18
Trefoil	10 23 fine new 25 30
Rapeseed, English	30l. 32l. foreign 28l. 30l. per last.
Rye Grass, English..... 30 42	Scotch 1 1/2 40
Tares, winter	10 12 Spring — —
Large, foreign..... 8 9	
Clover, English, red	55 70 white 48 60 per cwt.
Flemish..... 40 65	do... 45 48
New Hamburg	52 60 do... 46 60
Old do..... 35 58	do... — —
French	50 60 do... — —
Old do..... 40 50	
Canary, new..... 75 78	extra 55 86
Carraway, old	50 53 new 50 52

PRICES OF HOPS.

BOROUGH, Nov. 23.

The market continues in a dull and inactive state.

	East Kent.	Mid. Kent.	Wesd. Kent.	Sussex.	Farnham.
Bags, 1836	55 to 75	55 to 75	55 to 65	— to —	—
Packs, 1836	55 .. 85	55 .. 85	55 .. 75	55 .. 75	—
Bags, 1837	none	none	none	none	—
Packs, 1837	—	—	—	—	—
Bags, 1838	90 .. 116	90 .. 116	90 .. 100	—	—
Packs, 1838	100 .. 130	100 .. 130	100 .. 116	90 .. 110	—
Bags, 1839	130 .. 170	130 .. 170	110 .. 130	—	—
Packs, 1839	170 .. 210	170 .. 210	150 .. 170	130 .. 140	240 300
Bags, 1840	130 .. 140	—	—	—	—
Packs, 1840	130 .. 140	—	—	—	—

HOPS.—Account of the duty on Hops, of the growth of the year 1840, distinguishing the districts, and the old from the new duty:—

DISTRICTS.

DUTY.

	£	s.	d.
Barnstable	4	2	2
Bedford	1	4	2
Canterbury	10,512	16	3
Cornwall	2	14	8 1/2
Derby	5	17	3
Dorset.....	19	0	3 1/2
Essex	32	16	5 1/2
Gloucester	4		
Hants	1,874	16	1 1/2
Hereford.....	288	14	4 1/2
Isle of Wight	11	9	
Lincoln	98	11	10 1/2
Lynn	9	1	1 1/2
Northampton.....	11	0	
Norwich	1	16	0 1/2
Plymouth	10		
Reading	11	0	
Rochester	42,469	5	5
Salisbury	1,125	11	5
Stourbridge	73	17	9 1/2
Suffolk	32	12	11 1/2
Surrey.....	1	11	7 1/2
Sussex	5,625	10	2 1/2
Wales, Middle	6	1	
Worcester	75	5	1 1/2

62,253 8 11 1/2

Old Duty at 1d. 12-20 per lb. 34,091 16 1 1/2 4-20
 New Duty at 1/2 8-20 per lb. 25,198 5 10 16-26
 Additional Duty of 5 per cent.,
 p. 3 Victoria, c. 17 2,963 6 11 1/2

62,253 8 11 1/2

Excise-office, London, 18th
 Nov., 1840.

The following statement, showing the amount of the old duty on Hops, the growth of 1839 and 1840, may prove interesting to some of our readers.—

	1839.			1840.		
	£.	s.	d.	£.	s.	d.
Rochester	60,802	16	5½	23,256	19	7½
Canterbury	50,649	2	11½	5,757	0	4
Sussex	65,026	19	7	3,080	12	8½
Worcester	16,639	16	4½	239	19	0½
Farnham	7,730	7	1½	1,643	18	7
Small districts	4,688	11	0	113	5	10½
1839	205,537	13	7	34,091	16	1½
1840	34,091	16	1½			
Deficiency	171,445	17	5½			

POTATO MARKET.

SOUTHWARK, WATERSIDE, Nov. 23.

A liberal supply of Potatoes have arrived during the past week at the waterside, of which the annexed are the particulars, viz.—from Scotland, 1572 tons; Yorkshire, 1011; Devon, 574; Jersey and Guernsey 400; Kent, Essex, and Suffolk, 530; Wisbeach, 60;—total, 4147 tons. The limited supply reported in our last have enabled salesmen to reduce considerably the quantity in the market, as well as clear some out of the warehouses. Sales are brisker for superior samples, consequently there is a slight improvement in prices, the demand being steady at the annexed quotations.

York Reds	70s.	to	90s.	per ton.
Scotch	65s.	to	75s.	
Devons	70s.	to	75s.	
Jersey & Guernsey Blues	90s.	to	65s.	
Jersey Whites	—s.	to	60s.	
Kent, Essex, & Suffolk				
Whites	65s.	to	75s.	
Lynn Kidneys	—s.	to	70s.	
Wisbeach	—s.	to	65s.	

WOOL MARKETS.

BRITISH.

Nov. 23.

	s.	d.	s.	d.
Down Teggs	1	2	to	1 2½
Half-bred Hops	1	1½		1 2½
Ewes and Wethers	0	11½		1 0
Flannel do.	1	0		1 2
Blanket Wool	0	5		0 8
Skin, Combing	0	10		1 2

CHESTERFIELD WOOL MARKET, Nov. 17.—

An unvaried sameness still pervades the whole trade in this district, no new feature having presented itself for some time: nevertheless, staplers are purchasing with a considerable degree of briskness, at no material variation in prices. There is a deal of conjecture amongst the dealers in this branch of commerce as to future prospects, but it is universally allowed that all descriptions of wool have seen the lowest rates. There are still large quantities remaining in the chambers of the growers, who are evidently waiting for a start in the market; at all events, the present supineness in the trade cannot possibly exist long.

EXETER.—In this market it can scarcely be said that any alteration in circumstances have taken place. To purchase good lots of York Wool, the dealers must, and do give 9d. per lb. But having provided for the necessity of the case, they immediately fall back upon their old offers of 8½d. For Washed Wools, however, prices are fully maintained, and this too with a fair stroke of business done: the quotation continuing,—for Knott Wool, of from 11d. to 12d.; Dorset Horn,

12l. to 13d.; Marsh Wool, 12d. to 13d. per lb.; Sorts are—Fell Wools—Coarse, 6½d. to 6¾d.; Broad Head, 7d.; Kent Head, 7½d. to 8½d.; fine Head and Lamb, 10½d. to 12d.; Short Fell Combing, 9d. to 10d.; Old Skin Combing, 10½d. to 12d. per lb. Fleece Wools—Short Course, 7d. to 7½d.; Red and Pinions, 9d. to 9½d.; Green, 10½d. to 10¾d.; Cornish Stripe, 12½d. to 13d.; North Devon Stripe, 13d. to 13½d.; Tops, 15d. to 16½d.; Matching Tops, 17d. to 17½d. per lb.

LIVERPOOL, Nov. 21.

SCOTCH.—There continues to be a fair demand for the trade for laid Highland wool at our quotations. White Highland none. There is rather better demand for both crossed and Cheviot wool of all kinds, at our quotations.

	s.	d.	s.	d.
Laid Highland Wool, per 24 lbs..	8	9	to	9 3
White do. do.....	12	0		12 6
Laid Crossed do. unwashed..	9	9		10 6
Do. washed do.....	10	6		11 6
Do. Cheviot unwashed do.	10	6		13 6
Do. washed	14	0		18 0
Cheviot white, washed	22	0		25 0

FOREIGN.

CITY, MONDAY, Nov. 23.—The wool market has not undergone any particular alteration. The public sales of colonial attract the chief attention, and commence on Thursday, the 2nd proximo; 6,500 bales are advertised up to the present time. Domestic sorts are very dull. In the week ending to-day the imports have been 2,585 bales, of which 2,392 were from Mogadore, 173 from Germany, and the remainder from Russia.

Accounts of Monday from the French metropolis state that the purchases of *mousselines de laine* there had been made rather more freely, and this increased activity was expected to continue, the article having been neglected for so long a time previously. Good and very stout qualities brought 1 f. 30 c. to 1 f. 75 c. There was no demand for merinos and Neapolitans, and the choice was limited. Business in raw wool was duller, owing to the departure of several buyers, who had found the prices asked too high for them. The army contractors having also completed their purchases in a great measure, common wools were become in less request. Spanish fleeces were rather scarce, both in the French and Belgian markets, the business affairs of the latter country following very much in the wake of those of the former kingdom. The suspension of payments by a house in the trade having large connections with Germany, had hurt the market. Combed wools were in more favour, and at better prices.

Advices of last month from Vienna state that wool was decidedly higher, and that a fair quantity was being forwarded to England. The advance is given at eight to ten per cent., and a further rise was expected, the stocks being reduced.

PRICES OF MANURES.

Bone-dust, 21s. per qr. of 8 bushels.
Half-inch ditto, 20s. per qr. do.
Rape-dust, 6l. 15s. per ton.
Rags, 4l. to 4l. 10s. per ton.
Graves, 5l. to 5l. 10s. per ton.
Gypsum, 38s. per ton.
Salt, 2l. 5s. dirty, 2l. 15s. clean, per ton.
Lance's Carbon, 12s. 6d. per qr.
Humus, 14s. 6d. "
Soap ashes, 10s. per ton.
Artificial Manure, 12s. per qr.
Poittevin's Patent Disinfected Manure, 13s. 6d. per qr.
Nitrate of Soda, 18s. 9d. to 19s. 6d. per cwt.
Nitrate of Potash or Saltpetre, 27s. to 28s. 6d. per cwt.

PRICES OF SHARES.

No. of Shares.		IRON RAILWAYS.	Price per Share.	Div. per Share per Ann.	Shares.	MINES.	Price.	Dividend
6,300	Birmingham and Derby Junction 100l sh 70l pd	88la79l			4,000	Alten 50l sh 12½ pd		
9,600	Ditto and Gloucester 100l sh 90l pd	65la6l			1,000	Ditto New 15l sh 12½ pd		
15,000	Bristol and Exeter... 100l sh 60l pd	34la5l			10,060	Anglo Mexican (iss. 5l pm) 100l sh		
9,900	Ditto and Gloucester ... 50l sh 2½ pd				337¾	Ditto Subscription 25l sh		
7,500	Cheltenham & Great West. Union 100l sh 55l pd				10,000	Ditto Mint 25l sh 10l pd		
5,000	Chester and Crewe 50l sh .. .	32la0l			8,000	Blaenavon Iron & Coal 50l sh 45l pd		
3,000	Clarence (Durham)... .. 100l sh ..				2,000	Bolanoeo 150l sh		
8,000	Dublin and Kilkenny 100l sh 2¼ pd				1,000	Ditto New..... 50l sh 20l pd		
64,000	Eastern Counties 25l sh 2½ pd	8la½l				Ditto Scrip 25l sh		
64,000	Ditto Debutentes.. 3l 6s sd., 2l 3d.	34la½l			20,000	Hollivar Copper Company .. 15l sh	1la½l	
18,000	Edinburgh & Glasgow 50l sh 35l pd	27la3l			20,000	Ditto Ditto Scrip New .. 3l sh	3la½l	
10,918	Gard Junction 100l sh	212la0l	14lper ct		10,000	Brazilian Imperial 35l sh 90l pd.		
10,918	Ditto Half Shares.... 50l sh 40l pd	91½l	14lper ct			iss. 5l pm	13la15l	
10,000	Great N. of England 100l sh 70l pd				11,000	Ditto St. John Del Rey 20l sh 14½ pd	1la2½l	
25,000	Great Western 100l sh 65l pd	86la7l			12,900	Brazilian Macaubas Coeoes 25l		
25,000	Ditto Half Shares.... 50l sh 40l pd	49la½l			20,000	British Iron Comp. 100l sh 55l pd		
37,500	Ditto Fiftha..... 20l sh 4l pd	8½la9l			10,000	Cata Branca..... 10l sh 7l pd		
8,000	Hull and Selby..... 50l sh	47la0l			8,500	Colombian 55l sh		
36,000	London and Brighton 50l sh 40l pd	27la0l			1,500	Ditto Scrip 11 l sh		
22,666	London & Croydon. Av. 14l 18s 6d	11la0l			10,000	Candonga 20l sh 8½ pd		
6,334	Ditto Script 9l sh	11la0l			10,000	Copino 20l sh 12½ pd		10l
20,000	London and Greenwich 20l sh	34la7l	5s per sh		4,000	English Mining Comp. 25l sh 14l pd		
9,000	Ditto New 16l sh	10½la17l	1l per sh		20,000	General Mining Association 20l sh		
80,000l.	Ditto Debutentes (various amounts)					19l pd		
24,000	London & Blackwall 25l sh 20l pd	18la0l			9,204	Hibernian 50l sh 5l sh	2la5l	
1,500	Lester and Swannington... 50l sh	53l			5,730	Mexican Company 100l sh 12½ pd	2la0l	
2,100	Leeds and Selby..... 100l sh		2½l		5,000	Minas Geras 20l sh 12l pd		
6,100	Liverpool and Manchester. 100l sh	185l	4l per sh		14,460	Rend del Monte registered Av. 1sh		
11,475	Ditto Quarter Shares 25l sh	42la½l	9½ per ct			Ditto Ditto unregistered 2la3l		
7,908	Ditto Half Shares 50l sh	87l	9½ per ct		17,066	Ditto Loan (Notes) 150l sh		
36,000	London & S. Western, late London and Southampton Ave. 38l 17s 6d	53la4l	2l per sh		5,000	Redmour (consolidated) 5l sh 4½ pd		
6,000	Ditto Portsmouth Branch 50l sh				10,000	Rhydney Iron 50l sh	30la0l	
	35l pd	30la40l	5l per ct		28,267	Unitel Mexican 40l sh 40l pd.		
25,000	London & Birmingham. 100l sh 90l pd	106la70l	8l per sh			iss. 2l pm	3la0l	
31,250	Ditto New 32l sh 24l pd	46la7½l	1½ per sh		5,281	Ditto Scrip 2l pd.	3½la½l	
13,000	Manchester & Leeds 100l sh 70l pd	82la4l			8,857	Ditto ditto (New) 5l pd	6½la7l	
13,000	Ditto Half Shares.... 50l sh 25l pd	31la2l			6,000	Wicklow Copper 5l sh 5l pd		
30,000	Manchester and Birmingham 70l sh 40l pd	27la9l						
15,714	Ditto ditto Extension 70l sh 7l pd	3la4l				MISCELLANEOUS.		
10,000	Midland Counties 100l sh	72la0l			10,000	Anti Dry Rot Company .. 18½l sh		
10,000	Ditto.....¾-Shares of 25l .. 5l	8la0l			10,000	Assam Tea Company 50l sh 12½ pd		
15,000	North Midland 100l sh	70la2l			1,980	Auction Mart 50l sh	10s pr sh	
15,000	Ditto Half Sharcas. 40l sh 40l pd	36la0l			10,000	Australian (Agricultural) 100l sh		30s pr sh
12,000	Northern & Eastern 100l sh 40l pd	28la9l				28l 2s pd		
3,762	Seyern and Wye. Average 27l sh		2l 12spsh		8,600	British Rock and Patent Salt 50l sh 35l pd	13l	1l

END OF VOLUME XIII.

Printed by Joseph Rogerson, 24, Norfolk-street, Strand, London.



Illustration of a cow from the collection of the British Museum, showing the characteristic white markings on the face and legs of the breed.

THE FARMER'S MAGAZINE.

JANUARY, 1841.

No. 1.—VOL. III.]

[SECOND SERIES.

PLATE I.

The subject of our first Plate is "a Stallion for the improvement of the breed of draught horses," for which the first prize of Fifty Sovereigns was awarded to the owner, Mr. Loudon Craunstoun, of Abingdon Inn, Lanarkshire, at the Meeting of the Highland Society at Aberdeen, in October last.

PLATE II.

The subject of the second Plate is a Hereford Cow, the property of Sir Hungerford Hoskyns, Bart., which obtained a prize of Fifteen Sovereigns, at the Meeting of the Royal Agricultural Society at Cambridge, in July last, as "the best Cow in milk of the Hereford breed." This Cow attracted considerable attention at the Meeting.

A LECTURE

DELIVERED BEFORE THE MEMBERS OF
THE CALLINGTON FARMERS' CLUB,

AT THE TOWN-HALL, CALLINGTON, CORNWALL,
OCTOBER 14, 1840, BY MR. JOHN WELLS, OF
SOUTHPITHERMYN.

MR. PRESIDENT,—In attempting to read a paper to you and the respectable company I now see before me, I feel my inability to do justice to the subject I have the honour of laying before you. I have no pretensions to superior learning or eloquence that can tend to catch your fancy, or win your admiration—but I stand before you as a straight-forward British farmer, with a view of strengthening the cause in which I am engaged, and shall give you what knowledge I have attained in agriculture, from my experience in farming different soils in different climates, with the best feelings that can possibly possess an Englishman's breast.

Now Sir, it must be admitted, that it is a very comfortable thing for a man to have a nice good shoe on his foot—this shoe will suit one man very well, but will pinch the toes of another, and make him go crippling—and will be so loose on the foot of a third, that it will wear holes in his stockings, which is a very unseemly sight. So is it with regard

OLD SERIES.]

to laying down one general system for farming all lands; it is only by following the best system adapted to a certain farm, and comparing it with another, calmly and deliberately discussing the matter, that true knowledge can be attained. The intelligence of the age then, and the great improvement so perceptible in the arts and sciences, call loudly on the agriculturists of Great Britain, to arouse from that apathy and indifference with which they are charged.

As men, farmers are not naturally more devoid of common sense than merchants, mechanics, and members of the learned professions. Still it must be admitted, as a body, they have not that thirst for useful and practical knowledge, so essential to the well-being of that occupation to which they belong. Agriculture is a science of no ordinary kind; on its being well or ill understood, depend the comfort, welfare, and happiness, not of the farmer only, but of every creature, whether he be young or old, rich or poor,—for the quantity and quality of food for man arise from the cultivation of the soil, aided and succoured by an all-wise Providence. From this fact, Sir, I believe there is no object of more importance, or more deserving the serious consideration of farmers, as well as of every other class of persons, than a true knowledge of agriculture; it must and will command attention to the immense importance of adopting a good and regular system; and

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[No. 1.—VOL. XIV.

(I beg to call your particular attention to it) the consumer should feel that he is equally interested in this important matter with the producer. Want of attention and consideration on this point have occasioned a vast portion of those hardships which at times have pressed so heavily on the people of England. I will now, Sir, use my humble endeavours to point out the method by which the produce of the soil may be increased, thereby extending employment to the labourer, and adding to the comfort and happiness of my fellow countrymen. Swift says that, "he who grows two ears of corn where only one grew before, deserves better of mankind, and has done more essential good to his country, than all the politicians put together." Surely, then, it should be the object of every farmer to raise as large a quantity of corn, and all other produce (of course including beef and mutton,) as possible, on a given quantity of land. To accomplish these desirable objects, he must adopt a regular and proper system suitable to his farm, and bring the productive qualities of all his land into operation. Here it is that agricultural economy is called into action. If a farmer employ one man more than can be profitably employed, it detracts from his profits; on the other hand, if he suffer his land to be unproductive for want of labour, he is injured in a tenfold degree; therefore he should weigh well the matter, as to the number of hands necessary to enable him to farm his estate on the best principle adapted to it, so as to bring the productive qualities into action. He ought with great care and judgment to fix the number requisite as servants in his house, and the number as day-labourers, at the same time laying down good and proper rules, (and not merely laying them down) but enforcing them to be observed by his whole establishment, paying due regard to the moral and religious character of those he takes into his employ; he should also remember the responsible situation he holds, and that he is accountable for his treatment to them, as well as they are in discharging their duty to him. By putting these hints into practice, it will facilitate labour, promote industry, encourage good behaviour, and relieve the mind of both master and servant of that angry confusion that unhappily in many instances prevails, and is sure to continue where there is neither rule nor order observed. It is a matter much to be regretted, that so little attention is paid to character. We are told a good name is better than riches; I feel great happiness in saying, I know many masters and mistresses of families, who do endeavour to conduct their households in the right way; but it is to be lamented, that these are but few in comparison with the many. As regards the subject of expences, so great are the variations arising from circumstances of local and individual character, that information obtained from private persons, or calculations founded upon peculiar farms, would seldom be found applicable to any other than the instances to which they refer. The nature of the soil, the mode of cultivation, the difference of the prices of labour, seeds, and working cattle (which should all be calculated) in different years—all render accuracy next to impossible in estimates of that kind.

But were it possible to draw them so correctly as to suit every soil and system, much must still depend not only upon the intelligence and the industry of the farmer, but upon the vigilance with which he watches every item of his expenditure. Country tradesmen and peasant labourers are no

worse than other people of the same degree, but common honesty and strict integrity are widely different; and many a one, who cautiously keeps within the bounds of the law, will not hesitate to overreach an inexperienced or inattentive person in a bargain. Now, Sir, the truth is just this,—agriculture, considered as a science, cannot be properly understood and comprehended except from practice. Undoubtedly many, very many, excellent works have been written on the subject; but it is a rare instance to find in any two of them that the authors agree either in principle or detail. Farming, like all other business, affords a living profit to those who manage their resources with strict economy, and who recollect it is made up of savings as well as gains. It varies in so many different ways, and is chequered by so many unlooked-for incidents, that no year ever presents the same result as the last, and some may even produce a loss. But looking at farming in its most favourable light, less per centage is made from capital employed in it than from trade. It is indeed true, that the comforts enjoyed by the farmer, without expense, should be considered, and that he lives more cheaply than a tradesman; but his business cannot be so easily extended when successful, and it is one of never-ceasing anxiety. The time and mode of entry on a farm are of more importance than is generally supposed. In Scotland, where the principles of leasehold tenure are admitted to be well understood, the usual time of entry on the baildings, fallows, and permanent pasture, is at Whitsuntide, the arable land being held by the outgoing tenant until the removal or separation of the crops.

The same period, or old May-day, is also very general throughout the north of England; but in the south and west, Michaelmas or Lady-day. Thus, these several periods each possess peculiar advantages and disadvantages, on which, however, further observation would be useless, for a tenant can only rarely choose the time of entry, which is generally governed by the termination of the previous lease, or other tenure; of far more importance too, are the stipulations under which he is to take possession. It has been well observed by Lord Kames, that no branch of husbandry requires more sagacity and skill than a proper rotation of crops, so as to keep the ground always in heart, and yet to draw from it the greatest possible profit. Indeed, no one who understands the subject can doubt that it is one of the very first importance; and so prominent a place does it hold in the art of agriculture, that no better criterion can be found on which to estimate the merits of a farmer, than the course of cropping which he has adopted.

Although an adequate degree of knowledge concerning it be seemingly of very easy attainment, yet in fact no small degree of judgment and experience are necessary to arrange the plan, and to adapt it to all the varieties of climate, soil, and situation. It is therefore not to be wondered at, that many different opinions should be entertained, though all are, perhaps, very much founded upon truth, what would be suitable to one case being totally inapplicable to another. As before observed, the great art of cultivation consists in the maintenance of the land, at least, in sound condition, and without impoverishing it, if it cannot be enriched. The main object of all rotations should therefore be, to establish such a series of crops, as would prevent the too frequent recurrence

of any one of these which are considered exhausting. The land (to use the farmer's phrase) "grows tired" of a repetition of the same crops, and refuses to reproduce them in their former abundance. Now, Sir, it appears from the thirty years' experience I have had, that if a farmer would work on the right principle, he must be fully aware of the properties of the land he occupies; he must properly cultivate it with such crops as the soil and climate will allow him to grow with profit. I have been of opinion for many years, that a vast portion of land is wrongly cropped. I believe thousands of pounds have been lost by growing wheat and barley on land that might have been profitably cultivated with green crops and oats. There is too much stickling, unfortunately, for old usages throughout the country, merely, as it were, because they are old courses. However, I am happy to say, prejudice is fast giving way to reason. Let any man conversant with agricultural affairs, ask himself what difference could be made upon land by a farmer if he had,—say four times as much manure as was possessed by him; or rather, what crops could he not grow that were suitable to the soil and climate? Undoubtedly, he would never permit his land to remain barren and unprofitable under pretence of letting it rest, when he had the means in his own hands of making it productive. Neither would he depend on one moiety of his land to bear the burden of the whole, when he had the means of making the other moiety equally productive, and able to take its share of the burden. I am, therefore, fully persuaded, that cleaning the land, manuring it well, and growing such crops as are suitable to the soil and climate, would amazingly increase the marketable produce of the land, would give also a better market for labour, and contribute to the comfort and happiness of the people. In the attainment of these advantages, much will depend on the former system of husbandry pursued on the farm, as well as upon the skill and judgment of the farmer. Time is also necessary. To class a farm judiciously, is what I call laying the foundation of our agricultural prosperity; it is not the work of a moment, nor can it be effected by the stroke of a pen. The drainage and cleansing of the land, if it be wet and foul, are however indispensable preliminaries, without which it will be in vain to hope for success. Now, Sir, that rotation—once rightly and properly laid down—avoids all confusion, enables a man to look at the map of his estate, and settle what crop each field shall grow in any year to come. All judgment is comparative. One man, with only sufficient for the common conduct of his business, may succeed tolerably well, but another of superior abilities makes a fortune. This applies to every class of persons, but to no one with greater force than the farmer. In every trade and manufacture, there are certain rules by which persons in the same line are nearly equally guided, and in all which they are instructed during their apprenticeship; but husbandry is an occupation of boundless variety, extending to more objects, and fettered by fewer positive regulations than any other. Not only do different systems prevail in different counties, but in different parishes—and in this neighbourhood on different farms in the same parish—in some; they are dictated by peculiarity of soil or climate, while in others, they have arisen out of local habit, or they spring from improvements that have not been generally disseminated; and even in the most backward districts, there may be some which merit

imitation. It is quite evident, that some of those systems must be preferable to others, and that no man can determine which is best without being acquainted with all; nor can any farmer be said to be completely master of his business until he has attained that knowledge. It is not sufficient that he already gets what he considers a fair return for his capital and industry, if by other modes of culture he could obtain more; and if he neglect them, he injures himself, his family, and the public. He may be satisfied with growing twenty bushels of wheat per acre; but if he can grow twenty-one, it is not only his interest, but his duty to adopt it. Farmers, being necessarily much confined to their own districts by the unremitting care their business demands, can rarely inspect the systems of any other; and therefore improvements, that when made in manufactures are speedily promulgated in consequence of their usually close neighbourhood, are only slowly disseminated among husbandmen. Under the old system of farming, the land was cropped with corn until it was almost exhausted, and was then left to recruit itself under natural pasture; but after the introduction of turnips, and the culture of other roots as field crops, not only the land but the live stock also improved. Now, Sir, I have just told you, that improvements may be found in backward districts that merit imitation; and to prove that assertion, I will tell you what a farmer residing in such a district said publicly a few months since. On entering his estate about seven years before, he with great difficulty succeeded in getting sufficient food to carry his stock through the winter; but now he annually cuts forty acres of land that produce two tons of hay per acre. That this is an improvement cannot be denied, and how it was made I conceive it to be my duty to inform you. He had a large quantity of marsh and moor land of deep soil, which afforded him the privilege of collecting a large quantity of soil annually; this, with farm-yard dung, which is mixed in almost a raw state, is left to remain twelve months, with several turnings during that time, before it is put on the land; it then becomes good manure, and by dressing twenty acres annually, he has got this barren land to be really valuable. How many instances do we see, where farmers are daily bringing in lime on their farms, and the dung is laying, a small heap here and another there, wasting as of no value, instead of being collected with care and attention. In the course of my avocation in apportioning rent-charges in lieu of tithes, I happened last week to go into a piece of land that was comparatively clear of rushes to that by which it was surrounded, which made me enquire of the occupier what he had done to destroy these rushes; he told me, that he always cut them on the full moon in May, put some ashes over the ground, and cut them again in July, and by adopting this course for a few years he had nearly destroyed them. These things may appear very trifling to those who are fortunate enough to occupy good land; but they go to prove, and that most fully, that by good and proper management, sterile and unfruitful land may be made productive. Every farmer should aim at the improvement of his farm, and I strongly recommend a regular rotation of cropping for that purpose. That there are various rotations adopted is well known. Some grow wheat, turnips, barley, clover,—others, wheat, barley, turnips, barley, clover. Not a great many years since, it was

thought good management in some parts of this county, to break up a field that had been in pasture some years for turnips; after turnips, barley, then wheat, then barley, clover. You will observe, Sir, these are precisely the same crops as those on the system I have just named, only this difference; the first was broken for wheat, and only one corn crop taken after turnips, whilst the latter was broken for turnips and three corn crops taken after.

This might appear to a man unacquainted with farming to make no difference, but I am sure any man that has seen land cropped in both ways must perceive the one is an improving system, while that of taking three corn crops after the turnips is a system that must be condemned. I have much satisfaction in telling you that it is now very rarely adopted. I know full well it is laid down by some men that, two corn or white crops should never be taken in succession—perhaps on land that will grow with one ploughing a good crop of wheat, with little or no manure, and comparatively speaking, with little expence. I agree with them it is the very best system; but, Sir, if we look at the land in this neighbourhood, and set down the expence of lime and other matters that is absolutely necessary to enable you to grow a fair crop of wheat, I am of opinion that, unless the barley is taken between the wheat and turnips, no man can pay rent in this part of the country. I am fully sensible, Sir, there is a difference of opinion on this point; it is a matter, I confess, I much wish to hear calmly argued—hence the advantage of such meetings as I have now the honour to address. I remember well when the late F. H. Rodd, Esq., of Trebartha Hall, resided at and farmed Higher Crown Estate, in the parish of Egloshayle, in this county, I had an opportunity of daily witnessing his management of that farm. The estate had been well farmed for many years previous to his entering on it on the two corn crop system, and laying in pasture three years; but Mr. Rodd introduced the turnip husbandry, and farmed on the system of breaking for wheat, then barley, turnips, barley, clover—remaining in pasture three years. Having no lime in that neighbourhood, and being far distant from any town of importance, he manured with earth, sea sand, and what way soil could be collected for wheat, and farm-yard dung for turnips; bone-dust in that day was not known as a manure in Cornwall; on this system the land improved beyond conception; and it is my firm belief, that his profit on farming kept pace with the improvement of the estate. That excellent, and I would say truly “fine old country gentleman,” conferred such benefit on the farming interest of that neighbourhood as well as on this, as will make his memory dear to all improvers of their native land. I believe the same gentleman succeeded his father at Trebartha; he then altered his system; grew wheat, turnips, barley, clover. I also saw some of the fields when treated in this way, and really I was astonished at the dirty and unproductive state of the land. The land sown with wheat produced at harvest nearly as much grass as wheat; but this is not to be attributed to the want of the barley crop being taken between the wheat and turnips, but for want of a better preparation for the wheat tillage, proving my assertion that the land in this neighbourhood must have an expensive preparation to grow a fair and clean crop of wheat. After a few years it was found necessary to alter the system, and Trebartha is now farmed on the same principle as was adopted at Crown. Wheat, manured with lime and

earth; barley, turnips, manured with farm-yard dung or bone dust; barley, clover,—remaining in pasture three years; and with what advantage it is farmed, we have had annual specimens. Should there be any present who do not see enough of this excellent establishment to form an opinion, I have only to call to their recollection the grand exhibition displayed there at the recent sale. I am sure the fine stock, including the hundred beautiful Devons, the splendid mows of corn, and everything corresponding with them, must convince any man that the system pursued is a good and suitable one for the neighbourhood. I have made some experiments on the different modes of cropping land also; the result of which strengthens my opinion, that for the interest of both landlord and tenant,—and that interest is closely united—no better system can be adopted as a general rule for cropping the land of this county. I have found it to improve land and stock wherever it has been properly executed; but I am not wedded to this mode of cropping as being the very best, and that no further improvement can be introduced. I only show you, it is a system that will enable a tenant to pay a fair rent, and at the same time keep his estate in an improving condition, which to me are two very desirable objects. Now, Sir, I will suppose two pieces of land broken up for wheat, after being three years in pasture, which is generally the case in our neighbourhood, (and you will be good enough to remember we are speaking of our neighbourhood) the one shall be sown with little or no manure, and put from wheat to turnips; the other, properly prepared with fifty double bushels of lime per acre, and a crop of wheat and barley is taken therefrom—which of the two pieces of land is in the best condition for the turnip crop? This is a question I am sure fit for discussion. I am proud to see so many of my brother farmers here, who can throw much light on the subject.

I have already told you, Sir, that climate has much to do with growing all kinds of crops. A few years since, a field of good sound land, and well prepared, was sown with wheat in the month of September, in the parish of Davidstow; in the March following, a field was also sown with wheat in the parish of Egloshayle, both in this county. I saw both fields at the time, and know them well; now, the wheat sown in March, in Egloshayle, was cut, saved, aye, and under that too, whilst the wheat sown in the preceding September in the parish of Davidstow, remained uncut in the field.

Now this vast difference is solely to be attributed to the climate; and, strange as it may appear, the two fields were not much above ten miles from each other, as the crow would fly. This is only one instance of the many that could be shown, how the climate varies within a few miles in this county. Notwithstanding the great variation of climate, there are two things, if a man would farm well, applicable to all countries, viz.:—keeping his land clean and strongly manured. It should therefore be the care of every farmer to rise all the manure he possibly can. Now the question is, where is he, and how is he to make it? Without the least hesitation, I say the principal part must be made in his farm yard; and here I should ill discharge my duty were I to neglect to notice the very bad farmyards (with certainly some exceptions) we have in this county, much to the loss of the farmer, and ultimately equally so to the owner. I know it is not convenient for all men to do as the late F. H. Rodd, Esq., in many instances has done, viz.,

to destroy all the old scattered buildings on a farm, and build a complete and suitable farm-house and yard.

But in this, Sir, I think you will agree with me, that it would be desirable if landowners and their agents, instead of repairing the old miserable buildings we see placed one on this hill and another on that, would have a plan, and as the old buildings fall into decay, build in a proper place according to that plan, so as in the course of time, and without incurring any additional expense, convenient farm buildings might be seen on all farms. The action of manure upon the soil is commonly expressed by saying that it fertilizes the land, and that is generally deemed sufficiently intelligible to common comprehension; still it is of great importance to both the theory and the practice of agriculture, to know and distinguish the properties and the mode of application by which the different kinds of manure are made productive; and it is only by means of an acquaintance with their composition, that we can form any safe conclusion regarding their respective merits. It is a fact deserving notice, that the food on which cattle are supported, and their state of condition, make an essential difference in the quality of the manure. If the stomach of an animal be filled with provisions which contain but little nutriment, and which are composed of fibrous matter, which it is difficult to decompose—for instance, straw without grain or green food;—this will pass through the intestines in almost the same state as it was eaten. The dung will contain less of that secretion which belongs to animals whose flesh has not been deprived of its nourishing juices—though even this small quantity serves to give the straw a stimulus to putrefaction; but the excrement of animals which have been supported upon nutritive food, as corn, pulse, rapeseed, oilcake, green food, and so forth, and which are thus maintained in high condition, imbibes much of that property to which I have alluded, which thereby yields a more fertilizing manure than that furnished by lean stock. This is indeed strikingly exemplified by the difference observable in that produced by stall-fed cattle, and those that are fed on straw alone by night, and allowed to wander the lanes or neighbouring common by day. It has been well said, that without cattle no manure, without manure no crops. The suggestion naturally arises—how to raise food for cattle, and the best mode of its consumption so as to improve the live stock, at the same time secure the largest quantity and improved quality of the manure?

Now, Sir, how to raise food for cattle is clearly pointed out in the rotation alluded to. I will now give you my opinion as to the best mode of its consumption. It appears to me there ought not to be two opinions, that all cattle during the winter and spring months, at least, should be fed and kept in the house or yard. There is a very interesting little work on Agricultural Economy, by Mr. Owen Roberts, wherein it is stated that one bullock fed in the yard or house with straw, turnips, and the food generally consumed by cattle, will produce more manure than three bullocks that are fed on straw and hay by night, and allowed, as I before observed, to travel and starve in the lanes or neighbouring common by day. Leaving the quality of the manure out of the account, this, beyond a doubt, is a question of the highest importance; but many a farmer will say, how is it possible to get food sufficient to keep the cattle confined for so many months? This is a matter worthy of particular attention, because on this point depends in

a great measure the prosperity of the farmer. My answer to this important question is very brief and plain, viz.:—by growing the proper food for them in proper quantities; and one article above all others (which I call the farmer's friend) is the Swede turnip. A sufficient quantity of food being provided, let it be judiciously consumed in the manner pointed out; it will be sure to furnish the farmer with that article of inestimable value, good manure, which will enable him to increase the produce of his farm, give more employment, and confer a blessing on mankind.

But, Sir, to do all this, we must persevere with activity, zeal, and a determination to do our duty to promote the great cause in which we are engaged; and in carrying on this work, we ought to consider that we are not only labouring for ourselves and our posterity, and for the nations by which we are surrounded, who must profit from our instructions and be benefitted by our example; but that we are laying the foundation for the future prosperity and happiness of the human race, since their prosperity and happiness must ever depend on the facility with which their means of sustenance can be provided. This country has much to boast of. In the heart of war, it has few equals—in commerce and manufacturing industry, it has gone beyond all competition; in every branch of learning, it has produced individuals who can rival the proudest names that antiquity can furnish; and if, in addition to these other sources of fame and credit, it can bring agriculture, and the arts connected with it, to perfection, (and I hail with delight the rapid strides that have been made within the last fourteen years, not forgetting the subsoil-plough, towards this enviable object); where is the nation I would ask, that will be able to make a more distinguished figure in the page of history? Although highly esteeming the trade and commerce of our country, as I do—for I conceive, if they are in adversity, agriculture cannot long continue in prosperity; still, I believe agriculture is the foundation of our wealth and national independence, sustained by whose solid trunk, and supported as it were by whose deeply twisted roots, the whole fabric of our social happiness is held together. This interest is the very life-blood of the state,—the spring and inexhaustible reservoir of all the other streams of trade, commerce, and manufactures. A prosperous state of agriculture will be found to enrich, and fertilize the whole field of commerce, peopling great cities with industrious men, and replenishing all the marts, towns, and villages, from the inexhaustible granaries of nature.

Let us then remember, that we, and each of us, have a duty to perform—a duty that demands much forethought, consideration, care, attention, and exertion. I beg most sincerely to remind you, as one who has the interest of his beloved country at heart,—as one who has devoted his whole life to the improvement of land and stock, that the comfort, welfare, and happiness of the people, must ever depend on the quantity and quality of food procured for man; and that this production must arise from the cultivation of the soil, aided and succoured by an all-wise and good Providence. That same Providence has placed each of us in the situation we hold, and will most assuredly call us to account for the one, five, or ten talents he may have entrusted to our care. May we then go about our work with all our might, and bear in mind the words of the immortal Nelson—

“England expects every man to do his duty.”

ON PLOUGHS AND PLOUGHING.

It was well observed by the late Mr. Arthur Young, Secretary to the Board of Agriculture—a person of vast general information, and of a vigorous and original mind,—that “in matters purely philosophical, minute accuracy is not only desirable, but essentially necessary; but that in agriculture, it is nearly or wholly useless.” The force and truth of this observation has been lately called to my recollection from reading in your periodical, the many essays and disputes on the merits and demerits of the different kinds of ploughs now used in cultivating the various soils, and from observing that the supposed accuracy of the mathematical test, called a “Dynamometer,” or measurer of power, and that the lengthened essays, and the various opinions that have been promulgated on the trials that have been made—have left the subject as they found it, in regard of any tangible or applicable result. Until our minds be so far enlightened, and our purses so far opened, as to convert the various kinds of soil into a similar quality, and thus require the same implement, it is very evident, that ploughs of different degrees of strength and form, must be required to cultivate them; and, that it is from not making a due allowance for these different qualities of land, whence the various opinions and disputes have arisen. Laying aside as inapplicable the extreme nicety of degrees and angles, and resting the whole matter on the circumstances of general and useful application, as over balancing any partial benefits on certain isolated points, the implements in dispute may be divided into three kinds—the Scotch swing-plough, the midland counties plough, with two or one wheel on the end of the beam, and the turnwrist plough of the southern chalky districts. Of the former, many varieties exist, and of the latter some different forms have appeared; but our observations will apply only to the common and most approved forms of each implement. In Mr. Handley's experiments, he committed the mistake of assuming, that the Lincoln swing-plough was so similar to the Scotch, as to warrant an analogical deduction of inferiority to the wheel plough. Not one part of the Lincoln plough is similar to the Scotch, and the bended beam of the latter is a very sufficient distinction with all persons who have any knowledge of such subjects. The Scotch improved ploughs are made of wood or iron, and the best informed practical men allow little difference to exist in the performance of the different operations to which the implement is applied. With the exception of a scarifying plough, the common implement performs every operation on the land, as drilling of all green crops, straightening ridges, water furrowing wheat lands, and all common ploughings; and in many districts the mould board is removed, and scuffling knives affixed: two mould-boards are also attached, and the implement is thus converted into a scuffling plough, and into a double mould-board plough, for earthing up drilled crops—a practice now falling into disuse, except on wet loams, and on these soils close drainings will soon banish it entirely. Here then we have a sum of money, the prime cost of the common plough, performing a variety of operations and verifying the grand axiom in all employments of capital, “to produce results with the least possible cost,” and progressing towards the consummation of the idea of reducing the number of implements to the least possible, e. g., one plough and one cart. In drawing a comparison between this plough, and that of the midland counties with one or two wheels on the end of the beam, and assuming

the prime cost of each to be equal, there remains the important consideration of the purposes effected by the operations of each; but even on these grounds no fair comparison exists—for the systems of cultivation adopted in the different counties justify the use of the respective implements, and it is surprising that this circumstance is never noticed on either side of the question. In Scotland, the drill system for green crops forms the foundation of the whole arable culture, and accordingly attention is principally directed to that point. In England, a great part of the lands is kept in the quiescent state of old grass lands—a part only is ploughed—drilling is seldom practised, or on a very small scale, and also of very inferior performance, and common ploughing is the principal operation required.

Now it is very possible that a plough will be found to perform that operation equally well with the other, with less draught and even with less original cost; but the difference must be such as to warrant the abandonment of the other, which performs the variety of operations, and which will justify the increase of cost produced by employing a number of implements, or one for each special purpose. The Scotch farmer may be told to employ the double mould-board plough for drilling, and certainly on sands and all light loams, that implement does very well—but on clayey loams, on which the best green crops are produced, and of which a very great extent of farms is wholly composed, the superiority of the common swing-plough for drilling has been fully established, and when laid in the balance with extensive and repeated experience, every theory and hypothesis will at once kick the beam. For the most important purpose of raising fresh tilth over the dung, in which to deposit the turnip seed, the advantages are universally acknowledged; and even on light lands, a drill made by one furrow of the common plough is found equally suitable as by the double mould-board; and to these facts, a long and very extensive experience on soils, varying from blowing sands to the stiffest clays ever planted with green crops, enables me to add my mite of confirmation. An additional outlay will be required for double mould-board ploughs, and during the employment of them the common plough would be idle; and to destroy this idleness in his capital, either animate or inanimate, must be the constant care of the farmer. An example of sleeping capital, in the shape of agricultural implements, may be seen at Holkham, where a person is bewildered with a variety which must be little employed, and consequently can pay only a small per centage on the cost. The Scotch farmer draws straight furrows, by which, to lay the land into ridges, and by which, to begin the drilling of a field; and in doing so, the sole or bottom part of the plough forms the fulcrum, and the handles are the lever by which to direct the point of the beam to the object in view. The English farmer prefers or allows crooked lines, and the wheels on the beam of his plough resting on the ground, form another fulcrum, and renders any such straightening process impossible. This application constitutes a very great difference in the agriculture of the two countries, for no practical person will pretend to perform drill farming with wheel ploughs of any kind. To sow in proper style any quantity of turnip ground, two mould-board ploughs will be required—one to open and the other to reverse the drills; and on large and yet very common extents, four will be required; and, as one of that kind of implement is sufficient for any farm for the purposes of scuffling and earthing up, there is an additional expense of

three ploughs created, and the work is also more imperfectly performed. The superiority in point of draught that is sought to be established of the midland county wheel plough over the swing, must therefore be so great as to overbalance the additional cost of implements, and the imperfect performance of the work; and this difference must arise either from the greater quantity of work performed in consequence of easier draught, or from a diminution of the propelling power, or in the keep of the horses employed. But less work is effected by the wheel plough, and if higher feed be placed against the Scotch horses, the greater annual quantity of work amply compensates; if the feed of the horses be reduced to an easier draught, the animal will be debilitated, and unable to perform the usual quantity of other labour, as ploughing constitutes only one part of farm work. The small differences yet discerned are very far from recommending any alteration, and in the central counties, where wheel ploughs much prevail, we find such leading agriculturists as Messrs. Smiths, of Disbley and Swarkstone, Lows, and Mr. Hassall, of Hartsborne, and many others that I could name, using swing ploughs for thirty years past, and drilling green crops with them, and all on the grounds of general utility. The practice of these gentlemen is always superior to the neighbourhood, and in any branch of agriculture they are inferior to no Scotch farmer, even in drill farming; and I am much inclined to prefer such adoptions of judgment in the country of wheel ploughs, to the index of any "Dynamometer." I think it must appear, that the system of farming in the two countries attaches the assumed merit to each implement, and that, as green crop farming advances, wheel ploughs will disappear. Any difference or superiority on one point must be sufficient to overwhelm the other points; and if that difference be small, as at present, the many points will carry away the palm. Minute differences in such cases establish no point of general application, and are often from necessity overlooked and neglected; and though many landowners and farmers cannot believe anything to be well done when not performed by their own mode and implements, swing ploughs increase, and are applicable to all soils where wheel ploughs are used. If, in drilling and in cross ploughing rough lands, it be said that the wheels may be taken off, then it is no longer a wheel plough, and we must conclude with the candid and liberal-minded editor of this paper, "that a wheel is merely a stilt for an inefficient ploughman."

On the waxy clays, and chalky and flinty soils in the southern counties, the Scotch plough and the midland county wheel plough are alike useless and inapplicable. The implements are deficient in weight and strength to encounter the obstacles presented; the share is too broad with its wings to find a way among the closely embedded flints, and the bottom of the mould-board being as deep as the sole of the plough, both together constitute a body too large to make way for itself, and consequently raises the plough out of the ground, despite every exertion of the holder, and the waxy soil adheres to the metal board, and is pushed along and deposited in lumps. On these soils the heavy turn-wrist ploughs are used; a lighter kind has been made, but with little improvement, for on many stubborn soils the old plough is absolutely necessary. It required no experiment from Mr. Pusey to prove, that two horses cannot plough these stubborn soils at any season of the year, and all light ploughs run on the surface or sink too deep and are broken. Most Scotch writers, and with them Mr. Handley and others, condemn these heavy implements; but their opinions arise

from want of experience of them, and a cursory view of the country does not enable any man to judge; he must live in it, and cultivate the various soils with the different implements in all the seasons of the year. In the varied stratification of the chalky districts, soils are found that are cultivable by swing ploughs, after being broken up by the turnwrist, and at one period of the year and not at another—during summer and not in the winter, and *vice versa*—but the cultivator cannot attend to all these vicissitudes, and, like the Scotch farmer, he adopts the implement that is most generally useful. At the same time, it must not be concealed, that all sandy loams, comprising a very great part of the southern counties, may be tilled with much less power by swing ploughs, and more beneficially; for on many farms such soils are not found, and where they exist the farmer is deterred by the expense of a variety of implements, and finding the turnwrist plough indispensable, he uses it where not necessary. On all harsh, gravelly, chalky, and flinty bottoms, supporting loams of various denominations, a great improvement has been effected by using on all lighter ploughs the shares made of cast iron, which wear even on both sides, and take a better hold of the soil than wrought iron, which wears on the under side, and floats upwards. I do not know in what part of Kent Dandy Sharwood has farmed, when he says the Essex ploughs will plough anything but prejudice; and I shall have no hesitation in joining Mr. Smart, in challenging him to the contest with any swing or light wheel plough, with two, four, or six horses at his option, and on any soils that may be selected. No wonder need be expressed that Scotch farmers, who never saw the country, should have erred, when such assertions are made by an inhabitant and a practical man. The chief objections to the turnwrist plough are the power required, and the tearing instead of cutting operation; but great obstacles require a corresponding power to overcome them, and any attempts to lighten the implement diminish the efficacy, though it would appear that a more cutting form might be introduced. For ploughing all stubborn soils, and paring land for burning, and for various other purposes, it forms a valuable implement, and not likely soon to be superseded.

In England there seems to be a want of definite principles in the art of ploughing, and consequently no certainty can exist on that point. Good practice in one county is despised in another; one wishes flat work and another more upright—one judge approves narrow furrows and another wide; so that no ploughman can act with confidence as when one rule is laid down, and the object is known which is to be attained. In Scotland the invariable rule has ever prevailed, that all ploughing be straight, and that the furrow-slice be cut as narrow as possible, and set upright and level, that the harrow get an equal hold of each. This prevailing rule being known to every ploughman, he knows to what points he must direct his attention. I have seen very straight and very excellent ploughing by the turnwrist plough, on various soils; but in many cases the furrow is clumsy and round in the shoulder cut, owing to the set of the coulter and share, and the round breast of the plough. In many instances these ploughs perform the most abominable flat work that can be imagined. Crooked drills are incomplete farming, and though good crops are grown on crooked ploughing of all kinds, it offends the eye, and attaches as much to the farmer as to the labourer. On no point of practical agriculture have the farmers of the North more surpassed the cultivators of South Britain.

CULZON.

ON THE DISEASES OF WHEAT.

Sketch of a lecture on this subject, delivered by Professor Henslow, at the meeting of the Hadleigh Farmers' Club.

PROFESSOR HENSLow then rose, and was received with enthusiastic applause. He said he should hardly have ventured to offer a lecture on such an occasion, when they were all met rather for social purposes than for the discussion of philosophical subjects; but as he understood it was their plan at these meetings to enter into discussions upon various subjects, he felt less hesitation in bringing before them the questions he now proposed to do. (*Hear.*) The subject was that with which they were all perhaps a little too familiar in one respect, he meant certain diseases which occurred in corn. They might think him presumptuous, as he was not a practical man, in proposing this subject to them; but there were two ways to look at it—the one was that in which the practical man regarded it as those diseases annoyed his crops, and as he could or could not find remedies to prevent their recurrence; and the other was the way in which the scientific man looked at it as a matter of curiosity, and that he might find out the precise causes of those diseases; and when he had done so, that he might present them under a different aspect than before they had been presented to the practical man, that steps might be taken to destroy them, or at least to check them. The diseases he referred to were a few of those which either destroyed the produce or which materially deteriorated it, either of their grain itself or of the straw, for some affected the grain, others the straw. What he meant by diseases generally was a certain morbid action,—a certain diseased state of the plant, which was induced by some external influences. The climate in certain seasons produced disease in wheat as in animals; also varieties of soil produced disease; but there were also diseases occasioned by the presence of the lowest tribes of plants, which botanists called *fungi*, and to which belonged the mushroom. There were also diseases produced by animals lower in the scale of animals than even insects themselves. He should single out seven diseases, which, during the last autumn, he had examined. He did not turn his attention particularly to the subject until after the great meeting at Cambridge of the Royal Agricultural Society, when his opinion was asked, and though he had specimens in his museum, yet he had never before examined them, and had never consulted practical men about them. Since, he had employed some of his leisure hours in investigating these minutely, and he had found it an interesting subject as a mere matter of curiosity; and he had no doubt that, if scientific and practical men followed up the subject, they would, in the end, find out something or other to check some of those disorders,—he did not say all of them. The first four disorders or diseases that he proposed to introduce were occasioned by the presence of *fungi*. And in order that they might understand what he meant, he would mention a few circumstances connected with the general habits of these curious plants. He would take the common mushroom as an example. It was composed of two very different parts. One part was underground, and extended like the roots of trees and plants, with a flower destined to absorb nourishment for the growth of the mushroom—the other part above ground was destined to carry the fruit. These two parts they might consider to be present in all *fungi*, though

it was very difficult to detect the part which procured the nourishment for the mushroom in many cases. Even in common cases it generally escaped notice. Gardeners were acquainted with it as the *spawn* of mushrooms: it consisted of white filaments below the ground, spreading from a centre. When he mentioned mushrooms he referred also to toad stools, and the whole tribe. The filaments spread from a centre, and diverged to all points, and they produced those curious appearances called “fairy rings.” (*Hear.*) The part bearing fruit called mushroom rose up, and when they decayed away manured the land, and they found bright green rings in the next year, which they would observe to increase in size, merely from the spawn spreading underground. These minute *fungi* had also their spawn, with which they attacked the plants on which they fed. The habit of all *fungi* was to live on organized matter, which meant upon either animal or vegetable substances. They did not derive nourishment directly from the soil, air, or water, like flowers or plants of a higher order; but would prey either on decomposing organized matter, or on that which was absolutely rotten. They were found sometimes in a healthy subject, but even then it was likely that disease had begun in that which they so attacked, and which could not be seen to be diseased; but from that they spread, they increased the disease, and what they caused they afterwards preyed upon. They were useful in nature, however, and assisted in decomposing matter on the surface of the earth—they were a sort of scavengers, fed upon it and in the end decayed. Among these *fungi* were immense numbers so exceedingly small as to escape observation. Men were living as it were in the midst of a world without seeing it; until they took a microscope and looked around them, they were not conscious of the immense number of *fungi* and other plants existing in all their fields and everywhere else. (*Hear.*) All that was seen of them by the naked eye was when they assembled in large numbers, aggregated into one spot. If they saw a little spot on the surface of a leaf, or on the stem of a plant, and took a microscope and examined it, they would find it composed of hundreds and thousands of these little *fungi*. All these little *fungi* too had spawn which preyed upon the fruit. He would now introduce to them four of those *fungi*, which occasioned four disorders. In introducing them he would observe, that in different parts of England, there were different names; for instance, what was called *Smut* in one place was called *Pepper-brand* in another, and *Smut-balls* in another.

The four disorders he found to be named, *bunt*, *smut*, *rust*, and *mildew*; these were the four first, and they were caused by *fungi*. With respect to the *bunt*, it was best known in this neighbourhood by the name of *smut-balls*. They all knew that wheat was sometimes attacked by this disorder to a sad extent, though not so much of late years as formerly, for formerly he had read that sometimes half the crop was completely destroyed. In the *smut-balls* they had a dirty greenish looking grain, without the appearance of the embryo, which was to become the future plant: it swelled and attained the same size as the sound grain, which had the embryo; but when broken, it contained nothing but a dirty brown powder, extremely disagreeable to the smell, and the whole ear was frequently infected and destroyed by it. What he would now speak about, was the nature of the brown powder which produced the *smut-balls*. He had been asked by a practical man in this neighbourhood, what occasioned this? Now it was not likely that a person not in the habit of

using a microscope should be able to know what it was, but it had been known to botanists and others for many years, that this and many others were true *fungi*, and attacked the plant on which they grew. Before the ear makes its appearance out of the holes, that which was to become the future grain was very small indeed; but a skilful microscopic observer would be able to anatomize or detect that small grain in an early state, before the blossom had made its appearance. In so doing, and on opening the grain carefully, a hollow would be found in which the embryo made its appearance; but in this hollow they would find the *fungus* in its young state, and then the spawn of that fungus appeared like clay lining this little cavity in the grain. Upon it was the part which bore the fruit, and in this case that part consisted of a lot of little balls or parts of fructification. The size of these rapidly increased, and as the grain expanded they grew larger and became brown powder, which ultimately filled the grain. The spawn devoured all the flower—it was not allowed the formation of any embryo, and it completely occupied the whole interior of the grain. They would be astonished to find that there was no difficulty by microscopic observers to measure these little balls. The diameter of one of them when full grown was the 1,600th part of an inch, consequently on the tenth of an inch they might put 160 of them, or on the tenth of an inch square 25,600 of them. Or if they took an inch cube and took the thousandth part of it, that would contain 4,094,000 of these *fungi*. Hence he considered that a good grain of wheat was rather larger than the tenth of an inch cube, so that one single grain might contain above four millions of them. Now a single smut-ball would be sufficient to affect a whole field, if they were allowed to scatter themselves throughout it. But this was not all, for these different balls were not to be considered analogous to seeds themselves, but as seed vessels. If these were magnified very highly, they seemed to be made up of little cells perched upon a little stalk, and under water they were observed to burst and discharge what appeared to be a smoke. Under the very highest powers of the microscope they could scarcely make out this smoke to be made up of little grains—these grains were the seed of the *fungi*. On a little fungus, not bigger than the tip of the finger, it had been calculated there might be tens of millions of these seeds. This would give an incalculable number of seeds contained in a single grain of wheat. This almost exceeded comprehension in the division of matter; it almost reduced it to nothing, or as far as the infinity of space carried them in their conceptions in the other direction. It was evident, therefore, that a single ear of corn, allowed to produce these *fungi*, would be sufficient to infect many fields with *fungi* of this description. In ascertaining precisely the manner in which these *fungi* were propagated, they might hope to arrive at some means of checking them. He now proposed to introduce another fungus that attacked wheat and corn, and, as the habits of the two were similar, if he could suggest a means of checking one, it would apply in other cases also. The *bunt* fungus alluded to, confined its attacks to wheat and the grains of wheat. It was not found in any other description of corn. The next one, *smut*, which bore the name of chimney sweepers in some places, in this district known as burnt ear, was a kind of fungus frequently confounded with bunt; but it was quite a different species of *fungi*. In the case of bunt, the grain did not burst and the seeds were not scattered, and it was housed; whereas in the case of smut, the whole

ear was burst before the corn was harvested. The mode of attack was also different. Its size was not above half the size of the bunt; it had not the unpleasant smell of the bunt, but in other particulars was very like it. This might be detected more particularly in barley or oats. Sometimes half a crop of barley had been destroyed by it, as he had read; but in some years a small quantity. If they examined an ear of corn while still in the hole, they found that this fungus made greater progress than the other, and arrived at perfection before it came from the holes. There were little spawn, and a number of balls upon it, which balls burst and scattered the seeds in the same way; but they were much smaller, the diameter of one being 2,800th part of an inch, and the 1000th part of a cubic inch contained 21,952,000 of these seeds. It did not attack the grain as in the case of bunt. Suppose the flower of the barley was in a healthy state, when it was early attacked by smut-fungus all the parts were blended together, so as to form a solid mass. The flower did not grow, the corn did not expand, but instead, the base of the grain became expanded, grew harder and bound together; so that they found a large fleshy mass, in one part of which they found the young grain situated. The fungus attacked this fleshy mass, of which it had itself been the cause, and by degrees ate it all up, and then it appeared in the state of brown powder. In growing, the corn which had been put into the ground, when the root had been thrown out, absorbed the seeds of the fungus; just as it drew up the moisture, so it drew up the fungi scattered around. They were introduced to the roots, and went with the sap through the plant, until they rose to those parts where they preyed. That no doubt was their true history from repeated experiments. This fact in the history of the plant pointed out the manner in which they ought to endeavour to prevent their propagation. They must look either to the soil or to the seed. If the seeds of these fungi, as he would term them, were in the ground, some precautions should be taken to wash them off. It had long been proposed as a mode of securing one of these two points, to keep the corn pure and clean. One old plan was to wash it in a running stream of water; more recently the plan was to add lime, which indeed was in use in some places at this day. But there was a difficulty in the use of lime; and unless it was pure and applied a considerable time, with certain precautions, it would not answer. Another was the use of arsenic and sulphate of copper; and the intention here was not merely to wash the fungi off the grain, but also to kill their seeds if possible: for many of those mixtures he had mentioned were very destructive to vegetable life, and sulphate of copper in particular. When they sowed grain which had been in a solution of blue copperas, as it was commonly called, it was certain that it would destroy the fungi, but might it not also destroy the grain? That was very possible; hence the object of the farmer was to keep it soaked so long as to destroy the fungi but not the grain. (*Applause.*) He did not think that at present the practical agriculturist was sufficiently acquainted with the precise limits of time during which he should soak the grain, and of the strength of the material to be used. (*Hear, hear.*) All these things should be determined, and then this part of agriculture would become as scientific as the process of malting and brewing, or that of sugar-boiling, where every stage of the process was ruled by the hydrometer and other instruments—so that, if the agriculturists would make experiments, they might ascertain the quantity to be used, and run

no risk of destroying the corn as well as the fungi. With respect to the seeds of the fungi in the ground, the case might be more difficult. He had no hesitation in saying, that the worst bunted or smutted corn might be cleansed by soaking it in sulphate of copper; but with respect to the seeds in the ground there might be this difficulty, that after sowing the corn, they had not protected it against these seeds in the ground. With respect to some substances this might be the case. Perhaps in the case of lime its strength might go off, and if the grain placed in the ground met the fungi it might absorb it. (*Hear*). They might soak the grain so long as to prevent the attacks of the fungi. This might be likely from what they knew of the habits of fungi generally, and what was the effect of sulphate of copper. Having noticed these two disorders of bunt and smut, he next mentioned the rust, which was called the red rag in some places; he called it the mildew, and it was well known here by that name. The attacks of this disease were not upon the grain as in the cases of bunt and smut; it did not destroy the grain as the others did, but lessened the produce by absorbing the juices of the plant, which it lived upon. The plant was more or less diseased at the time, and it increased the disorder to a frightful extent. The red rag or rust, as far as he had seen it, made its appearance in the scales or chaff of the plant; it was to be found in the straw, but generally it did not burst through the straw. In the skin, or epidermis, which covered all plants, these little fungi inside the plant made their appearance outwardly by bursting the skin. They appeared as blisters at first; the skin then burst and little balls tumbled out, and these balls were the little fungi. The learned and reverend Professor here exhibited a representation of one of these blisters highly magnified. The little balls which contained the rust were many of them perfectly spherical, and others were oblong and differently shaped; up to this day he believed these were considered to be the only forms which this particular fungus assumed. He had made a curious observation in a scientific point of view, and that was—that this rust was nothing more or less than a younger state of the fungus, which had been hitherto called the mildew; that it was the passage from one to another; and if the weather continued favourable to the development of this disease, it would turn to the mildew. (*Hear*). It was fortunately checked in most places during the past year by finer weather succeeding cloudy weather, which latter was the most favourable to the development of the species of fungi. He made this discovery by observing that some of these blisters within the scale of the chaff, as the plant advanced, were becoming of a dark brown colour; and upon examining them lately he found that, though not one had the appearance of the fungus usually called the rust, they had assumed the shape of little clubs, which was quite the intermediate state between the rust and the mildew. The shape the true mildew assumed was curious; every one knew it when it appeared in black stripes or streaks on the surface of the corn. These streaks or stripes, if seen by a common lens, might be observed bursting through the skin or epidermis. By a higher power of the microscope, they might be seen bursting through the epidermis in tufts, and it was these tufts coming out in hundreds, and thousands, and millions, which gave them this dark appearance. The passage then from the rust in this form, when it was checked by the alteration in the weather, up to the time of its bursting, was manifest, and he had no doubt that the four disorders he had mentioned might now be reduced to three, and that the rust and mil-

dew were really the same—one being in its incipient state, and the other in its complete state. (*Hear*.) No doubt it frequently happened that when the weather was unfavourable to it the red rag was becoming mildew. When the weather was favourable, he had as little doubt that mildew would follow. He had no particular remark to offer respecting the mode of checking the rust and mildew, for the history of these two was not yet sufficiently understood. It must be left to the practical agriculturist to point out the recurrence of the disease, and botanists must then set to work with their microscopes and experiments, and see if they could not elucidate their history a little better. There was still a doubt how these plants were propagated; it was supposed that they shed their seed; but it was doubtful if it were introduced by the root, as other plants, or by certain pores in the skin, or epidermis. This epidermis, to the naked eye, was an exceedingly fine membrane. Under a microscope that membrane was found to have a number of cells, of a sausage-like shape, which opened and closed, and were the true breathing or air holes. Some supposed that the seeds or spherules of the fungi were introduced through these pores. He (the Professor) doubted it, and believed they were introduced by the root. Botanists were divided in opinion, and until they could find out the manner of their reproduction, it was impossible to prescribe with the skill of a doctor the mode in which they were to be checked. In speaking of the rust or mildew, he had been asked if he thought the barberry bush had influence in producing the disease. It was the opinion all over the Continent, and in some parts of England, that it had; he could not say that it had not, and he could not see any reason why it should. One reason which was urged that it had was, that the barberry was subject to be blighted, and that consequently the blight might extend over the fields. Now that was not correct, for the blight of the barberry was different from the blight of wheat. On the leaf of the barberry they found a quantity of rusty red patches, represented as so many cups. They contained a sort of seed vessels, which were sometimes like the rust certainly, but the holes were quite different. That which was called the mildew on barberry, was a sort of white filmy stuff: when on the leaves it appeared to be made up of brown and yellow globes, containing the seeds, so that the two fungi which occurred as barberry blights were totally different from those which affected wheat. (*Hear, hear*.) Whether it had the horrid, disagreeable smell which the barberry put forth, he did not know. It was true that rust might occur in the neighbourhood of barberry bushes, and it might be ascribed to this, that the barberry loved to grow on those soils which might cause blight in the corn. Some plants liked rich soils, others barren soils, and the barberry liked the latter; and when wheat was sown in those particular patches, of course it was more exposed to the attack by mildew. Experiments had been tried with the barberry: in many instances wheat had been sown round it, and no blight or mildew followed: there were also fields surrounded by barberry trees, and yet they were not blighted; and it had been asserted, that in some fields the barberry had been removed, and the blight had not been removed. He should be most happy to assist in the elucidation of these things. (*Loud applause*.) The Rev. Professor here finished the first part of his lecture.

Mr. LAST, in an eulogistic speech, proposed the health of Professor Henslow. (*Loud cheers*.)

Professor HENSLOW briefly acknowledged the toast.

The VICE-PRESIDENT proposed the Chairman, and success to the "Hadleigh Farmers' Club." (*Much cheering*).

The PRESIDENT returned thanks, and congratulated the town of Hadleigh, the gentlemen in its neighbourhood, and the agricultural interest generally, on the establishment of Farmer's Clubs, the great and solid advantages of which he enumerated. One reason for his advocacy of these institutions was, that they encouraged a patriotic spirit; for it had been said, that he who made two blades of grass grow where formerly there was but one was a true patriot; and with how much propriety might that sentiment be applied to corn as well as grass. (*Cheers*.) Might it not be applied also to the flock as well as to the fleece? (*Much cheering*). Might it not be applied to the grower as well as to the grazier of stock? (*Loud applause*). Every advance made in agricultural improvement, and in the adaptation of science to agricultural purposes, was a national blessing; and by the means of these associations, it was thrown upon the world free and unshackled; it was sent forth to the whole community free as the air they breathed. Here there was no monopolizing spirit; every ascertained improvement was offered to the public, who might receive or reject as they pleased. (*Applause*.)

Mr. HENRY SALLOWS gave the health of Mr. Rand, the Vice-President. (*Applause*.)

The VICE-PRESIDENT returned thanks.

Mr. GRIMWADE (the Secretary) here read the Report for the past year; it was a very elaborate document, drawn up with much talent, and possessed considerable information upon the various subjects which had engaged the members in discussions at their meetings during the past year.

Mr. FARROW proposed that the Report be adopted and printed for circulation amongst the members. (*Cheers*.) In doing so he observed, that the further they went the more they found the necessity of meetings like this, for the purpose of diffusing the increased intelligence of the agricultural interest, and for registering those experiments which were daily making upon the cultivation of the soil. And he thought that the evidence of this evening, as to the benefits to be derived from the association of men of science with the practical members of the Club, was a striking instance of the good that might be effected by them. Much as they had heard of the benefits which science was calculated to impart to agriculture, there was one subject which had been a little overlooked, and that was the advantage which science itself might obtain from the results of experiments made by practical men. Hitherto the experiments and researches of scientific men had been bounded by too circumscribed a field. They had not had that room for their experiments which would afford their theories all the utility which might be wished; but by means of these Clubs a member's farm might in fact become the laboratory or workshop of the scientific man, and the result of experiment, carefully noted, might be of infinite use to him in his researches. (*Heard and applause*.)

Mr. ROBERT HAWKINS, of Mildenhall, seconded the motion.—Carried.

Mr. LAST moved the re-appointment of the Committee and officers for the ensuing year, which was adopted.

The healths of Mr. Grimwade, the secretary, and Mr. Clayden, the treasurer, were then drunk; and those gentlemen responded to the toast, amid applause.

Professor HENSLAW again rose and resumed his address. The next disorder in corn which he wished

to introduce was one with which in this neighbourhood, they were, happily, not familiar. Still it was one which embraced so many curious details, that he was sure they wished to hear something about it. (*Heard and applause*.) It was a disorder very destructive to rye more particularly, especially in some continental nations, and even in Ireland and Scotland, and some parts of England. It was seldom to be met with in other kinds of corn, except to a trifling extent. It did exist here, but not much, and from inquiry he had made, it had been generally overlooked. The disorder he alluded to was termed the *Ergot*. The reverend Professor here displayed a sketch of the appearance it assumed in the rye. In this case the grain was lengthened to a considerable degree, instead of being of the size of the husk, and was not confined within it. It had a black appearance, and was frequently curved in the form of cocks spur, hence its name of cock's ear, or ergot of rye. It was a very powerful medicine, but a very dangerous one, and only to be employed by experienced practitioners. Its origin was not exactly known; but its description was that of a grain lengthened out and become black, having lost all its nutritive qualities, the ear growing to an inch and a half in length, and assuming the peculiar character of burning very readily, and like an almond, showing that it contained a considerable quantity of oil. It had quite changed its nature. To the taste there was no very great sensation; but it was rather nauseous to the smell in large quantities. When it occurred to a great extent in a rye harvest, it made bad bread, and produced effects which he would presently allude to. The cause of this ergot was not thoroughly understood. Some had supposed it was owing to a puncture by an insect. Many insects laid their eggs in different plants, and in consequence produced disease. The common oak apple afforded an instance of this, in which a little fly deposited an egg, which ultimately formed what was called Robin's Pincussion. A gall on a rose was occasioned by a small insect puncturing the leaf, and then the disease or tumour was assumed, which afforded food for the fly. Another supposition was, that the ergot was occasioned by a small fungi; in that respect it might be supposed to be the same as the other diseases. But here the fungus was not in the plant, even if it were the inducing cause, which he doubted. A little fungus was frequently seen to eat over the whole of the ergot; possibly the ergot afforded a good nest for the fungus, and then it attacked it; for the fungus was found on other parts of the plant where the ergot was not induced. Whatever the cause, it was sometimes induced in great abundance; and in certain seasons, perhaps from the fifth to the third of a harvest was destroyed. In those districts where it abounded, it added such a noxious quality to the flour, and to such an extent, as to produce the most fearful diseases by which mankind could be afflicted. It had been proved that, for the last two centuries when the ergot raged, gangrenous epidemics raged in proportion, which epidemics caused the extremities to rot off, and hundreds of people of the poorer classes, who mostly fed on rye bread from extreme poverty, to die. They seldom recovered when carried to the Hospitals. It was supposed, therefore, that these gangrenous epidemics arose from the ergot, from the circumstance of their being most prevalent when ergot prevailed most. The fact had been tested by experiments with flour adulterated with ergot administered to fowls, upon which it had the effect of rotting off the tongues and bills, and occasioning death, the bodies being covered with gangrene spots. The tails and ears of pigs had dropped off from the animals having

eaten of it. It was stated, however, that after being kept for a time it lost its property. Some coffee was once ground by mistake in a mill, where a chemist had previously submitted ergot to the same process; the result was that a gentleman, who partook of the coffee, was seized with the most violent pains in his stomach, and was obliged to have medical aid. The fact of the ergot being so deleterious to the crops, he had brought before them from the circumstance of its occurring in wheat about here to a great extent; an extent which surprised him very much, because he had heard from those who had paid attention to it, that it was seldom seen in wheat. One of these gentlemen of 50 years' standing, said he never saw but one example in wheat, and another said he never saw but two—he (the Professor) had found it here in sufficient abundance. Speaking to the miller at Hitcham about it, he picked out a couple of handfuls from a bushel of wheat sent to be ground! He thought it not at all impossible that in certain years, when the ergot abounded to a considerable extent, it might produce great injury; and it was a remarkable fact, that in the next parish to his own, in the year 1752, when ergot abounded, a whole family lost the use of their legs in one week! At the time it was ascribed to their living on bad wheat. No one dreamt of wheat having ergot; but it was not improbable that the wheat was ergotted. It never attacked any but the poorest classes, and these from having a bad habit of body, induced by scanty nourishment. He would now pass on to a disorder with which they were all pretty well acquainted. It was commonly known by the name of pepper-corn, and ear-cockle. It was where the grain was blighted, dwindled in its size, and assumed a dark purplish colour; when thoroughly ripened it had a tough skin, and when opened and examined, instead of finding flour was found a cottony mass. That cottony mass was a number of living creatures, and a single grain of wheat would contain ten thousand of them. The history of that animalcule which caused the disorder had been thoroughly investigated by scientific men, who observed that when these pepper-corn grains were put into the soil, the animals did not come out of them until March, having lain there all the winter. In March the ground got moister: then they came out in clouds, some thousands out of a pepper-corn, penetrated the soils, searched about for food, till they came to the grain of wheat deposited in the ground. They entered the grain which was then growing, and came up with the stalk. They might be traced in the stalk gradually, until they arrive at the young grain even in the holes, before the blossom was expanded or the seed formed. When they got into the grain they grew rapidly, and being full of eggs they deposited them, and in a few days they were hatched. There they lived on the flour and devoured the whole of it, so that the pepper-corn contained not an atom of flour by the time the ear was ripe. They generally found that every grain in the ear was attacked; though it was true that in some cases all were not. The most extraordinary circumstance in the history of these little animals was, that they retained their vitality under circumstances in which animals of a higher order would cease to exist. If one of these pepper-corns were dried and kept for years, so that the animals appeared as if dead, and if they were to be touched they would go to what seemed to be powder; yet if they were moistened, they would become perfectly alive in a few minutes, or if very dry, in a few hours. If he were asked what he would recommend as a preventative of the attacks of these animalcules, he did not know that he was prepared to suggest anything particular,

excepting this—he might be altogether wrong, not being a practical man, but it was a suggestion which had been listened to in other places—it was that the growing of seed corn should be made quite a separate branch of industry—(*Hear, hear*)—not merely for the purpose of procuring clean seed for sowing in their fields, but for procuring good crops of corn. (*Much applause.*) Suppose an individual, for instance, raised a crop of seed-corn in beds, just as gardeners raised their finest and choicest seeds, and took care in so raising them, to go round the beds continually. By so doing, practice would enable him to see every ear of corn which was bunted, smutted, or ear-cockled; and he could pluck it out and destroy it. That, at least, would reduce the extent of the disease. There was another object, which was the keeping the seed from spreading—that would also be under control by the plan suggested. The last disorder he would notice was very common all over England,—more common than was generally allowed or supposed to be—or at least the effect was not duly estimated, according to what he had seen, though in some cases it might. In an ear of corn, when they rubbed out the kernels, they found some that were not filled, and some remaining as they were in the state of flower. This might be owing to a variety of causes. Sometimes wet weather might cause the bursting of the skin, and the seed was lost; but the most destructive was a little fly, an insect called by botanists the wheat-midge. This fly was furnished with a tail, a long sort of tube, which it drew up into its body. The use of this tube was to deposit its eggs in the flower of wheat. When so deposited, these eggs became caterpillars or maggots, and these maggots appeared to suck the juices of the young grain so as to prevent its expansion and development. Having laid their eggs, generally in the first part of the month of June, the wheat-midges appeared in myriads. It might be asked, “were they not to be seen?” The fact was, that they only flew about in the evenings from seven to nine o'clock, and they were all so small that, unless watched for, a person might be in an immense multitude of them without being aware of their presence. The eggs, when deposited, hatched in a few days; the grubs went on sucking the juices until the time of harvest, when they went into a chrysalis state as caterpillars did. In that case they spinned themselves into a little web, and attached themselves to a sound wheat-grain or to the chaff; and at this time of year, if they took a head of corn and found this chrysalis of the wheat-midge upon it, they might ascertain that it would remain there until next June, when it would come out. Since every one of those wheat-midges laid a great many caterpillars, of course, if there were no means of checking their progress, it might be supposed that in a few years the whole of the grain in England would be destroyed, they increased so much. But all things seemed to work together for good, and there was a provision made by Nature to keep them down, of the most remarkable description. There was a tribe of insects, which entomologists termed *ichneumon*, which were destined to keep within bounds the increase of other insects. These flies were furnished with a little prong at their tails, and they settled upon the caterpillars of the other flies, and with this prong deposited an egg in their body. In the autumn, just before the wheat-midge caterpillars turned into a chrysalis state, if the ears of corn were examined, these little black flies might be observed excessively busy about them. They were engaged in searching for the caterpillars of the wheat-midge, and they laid but one egg in a caterpillar. This egg turned to a grub, and gradually devoured the caterpillar, not touching the vital parts

until full grown, and ultimately these midge caterpillars became nothing more than a shell, and died. This was similar to the case of the common cabbage caterpillar. Stacks of corn, which were not thrashed out before June, were full of these wheat-midge chrysalis—there they were dormant, but ready to come out in the harvest. Consequently the stacks not thrashed out before June, supplied the surrounding neighbourhood with an abundance of these destructive little insects. It was said that it was necessary to the farmer's interest, that the corn should be kept unthrashed until after June. Perhaps so, but of two evils they should choose the least, and it might be expedient to thrash out before June, and a means found of preserving it in as good a state as if it were unthrashed. This autumn he was much surprised in examining the ears of wheat which he had plucked from a field belonging to Mr. Bennett, of Hitcham, to find that on a slight calculation his crop must have suffered pretty nearly one third (so we understood the Rev. Professor) from the wheat-midge. Mr. Bennett himself said he was never so disappointed in a crop in his life—everybody thought he had the finest in the neighbourhood, while it turned out to be very trifling indeed. With respect to the keeping of corn and the practice of not thrashing it out until after June, the learned Professor observed, that it was a fact that corn would keep good for centuries, and referred to that found in the ancient granaries discovered in recent times, and in the catacombs of Egypt, where it had lain for 3,000 years; and within the last few months, it had been recorded that some of these grains had been sown, and had vegetated. Having spoken of the ravages of the wheat-midge in the vineyards of France, he proceeded to observe, that a French society offered a premium for the best mode of destroying these destructive insects, and the following simple remedy was adopted. It was the custom of moths in general to fly to a light, particularly the males did this, and a gentleman induced a proprietor to hang 200 lamps about his vineyard, with little floating lighted wicks, protected by a glass. Beneath every one of these lamps he placed a saucer of oil, and the moths flying against the lamps, dropped into the oil, by which means, in the course of two hours, upwards of 30,000 of these moths fell into the oil and were destroyed. By attacking them boldly in this way, nearly the whole produce of the vineyard was saved (*Hear, hear, hear*). He should conclude his lecture by stating that the principal advantage of the study of these diseases, he conceived to be this, that upon the old proverb of "a penny saved is a penny got"—a bushel undestroyed was equivalent to a bushel grown (*Loud cheers*). Therefore, if they were to increase the main produce of England, there were two ways to do it—not only to secure increased crops, but to prevent a vast amount of destruction which would go as so much saved (*Hear*). His own attention had hitherto rather been directed to the saving system than to producing increased quantities. But he and other gentlemen had been appointed as a committee, to procure all the varieties of wheat known in England and abroad, for the purpose of forming a general calculation of each; and there was now in progress a system for arranging these and making experiments with them. And he trusted that in time a museum would exist in London, where every one might see for himself which was the best, by trying it on his own soil in different ways. Thus an improved produce might be discovered (*Hear, and applause*). In this undertaking he should be happy to receive the assistance and information of any practical agricul-

turists (*Loud cheers*). The reverend and learned Professor then concluded his lecture.

Mr. LAST proposed a vote of thanks, on behalf of the Farmers' Club, to Professor Henslow, for delivering this scientific and excellent lecture (*Much cheering*).

Mr. NEWMAN seconded the motion, which was carried by acclamation.

Professor HENSLow briefly acknowledged the compliment, and stated that he was ready at all times to assist in the discussions of the Hadleigh Farmers' Club.

Several toasts were afterwards drunk, and speeches made, and at a seasonable hour the company broke up, highly pleased with the proceedings of the evening.

[The Report of the Club shall appear in our next number.]

ON THE REPORT OF THE CHARTHAM FARMER'S CLUB.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

In your Magazine for this month, I find the Chart-ham Farmer's Club have come to a decision upon the best mode of feeding their horses; in which I find they say 1½ cwt. sainfoin is sufficient for four horses for one week. Now I wish to know whether this is an error in the printing or a fact? as we, in our part of the county, cannot understand it, and hope to find in your next magazine, one of the members of the above Club, will readily explain it. For 1½ cwt., which is three trusses for four horses, for one week, seems to me impossible to be sufficient. The allowance of oats and beans, &c., is about the same as we give.

I also wish to ask whether in the four-course system it is advisable to sow your early fed off turnips with wheat; we do it, thinking it is better to rob the last season of about 12 acres or so every year, this quantity being fed off in time for wheat, than letting it lay through the winter idle with the sheep dressing at the top, thereby losing a great deal of the goodness of the dressing by being so exposed. On the other hand, will it do to have wheat come so often, viz., turnips wheat, seeds wheat, instead of turnips, barley, seeds, wheat; and I hope to find some experienced farmer will answer this, (being a wheat stubble before turnips, it makes wheat come three times in five years,) we only sow half seeds and half tares, thereby making our seeds come only once in eight years, by exchanging with the tares, the same with the barley and oats, consequently the turnips and wheat only come once in four years, excepting when I rob the lent season as above, and I doubt whether we are doing right in so doing. At the same time it seems a pity to let your turnip fields fed off lay bare through the winter, to be ploughed and sowed in the spring. I also wish to ask any of your readers whether they can show me a profitable account of suckling, changing the cows, with rent of meadows, oilcake and hay, and man's time, and sucklers; as I find by taking all these things into account there is nothing left for the farmer; I have asked many myself, and the only answer I can get, is, I think they do pay, but I cannot tell you, I keep no account; and I fear farmers do a great deal at a loss in ignorance, by neglecting keeping proper accounts. I hope to find some able person will an-

answer this question, and if he can show me that suckling pays—after taking into consideration the rent of meadows and expenses as before stated—I shall be obliged to him; but if I am answered with silence, then I say why not do away with such insipid food as veal, which is very unwholesome and no advantage to any one, but a loss to the country; and let your meadows be cut and your aftergrass for sheep or horses, if they will not come to a cut, sheep them, and the sucklers weaned and reared, to make roast beef; your yards would yield much better dung by fattening or feeding bullocks with cake, as cows only have cake when in full milk, for the butcher or the marshes, as you please, by giving much or little cake to cows only kept to supply milk and for breeding, by which means we should make more beef and no veal, doing away with unwholesome, indigestible food, for the best food, giving the farmer a profit instead of no profit, and doing the country a great good, by giving a greater supply of beef, and thereby rendering it cheaper.

Kent.

ADDIS JACKSON.

ON THE MANAGEMENT OF BEES.

BY THOMAS WARD JESTON, ESQ., HENLEY-ON-THAMES.

(From the Journal of the Royal Agricultural Society.)

I have found by experience my plan for the management of bees, and mode of taking their superfluous honey, without destroying the parent hive, fully to succeed: in a bee-country it will afford the cottager a very ample return for his trouble, and not require so much watching as the old plan—for the older the hive is, the less chance will there be of swarming, but a greater chance of a large deposit of honey. I have kept bees more than twenty years; have tried Huish's, Nutt's, and various other plans; but the one suggested by this industrious insect itself I have found to be the most simple, cheap, and successful, and will not cost the cottager more than sixpence to adopt, in addition to his old hives.

Some years ago I placed an empty butter-tub under the board on which the hive rested; the sun cracked the board, and the bees enlarging the opening, took possession of the tub, and, after filling their own hive, deposited 26 lbs. of honey and comb in the tub below. This I took possession of for my own use, leaving their hive full of honey for their winter's consumption. By improving on this simple plan, I have carried off the prizes for honey at the Henley Horticultural Society for the last four years. A board, half an inch in thickness, 18 inches in



width, and perforated with two holes, each an inch in diameter, is placed between the hive and the butter-tub. The tub should be placed under the hive as early as March; the bees having a great dislike to any disturbance of their arrangements. I last year took upwards of 40 lbs. of honey in this way, although the season was so bad, and an ample supply of food was left for the bees to subsist on during the

winter. This plan will prove a good substitute for the "rear" used to enlarge the common hive; with this advantage, that a supply of honey can be obtained from the strong swarms as well as the old hives.

I have never found occasion to feed the bees from which honey had been taken in the mode described; but previously to the adoption, I was in the habit of feeding them with coarse sugar boiled in beer and a little old wax-comb, to the consistence of a syrup. As an experiment I once fed some bees with treacle, made from grating 112 lbs. of beetroot, pressing from it one gallon of juice, and boiling this with one tea-spoonful of sulphuric acid (commonly called oil of vitriol) and three tea-spoonfuls of common chalk, or whiting in powder, which will clarify it and throw off all impurities, leaving, on evaporation, a clear syrup fit for feeding bees.

There is little or no gorse or heath near Henley, and the character of the country is arable. The market-price of virgin honey (such as is obtained on my plan) is in the town from 1s. 6d. to 1s. 8d. per pound, and the wax from 1s. 6d. to 2s.

The following are the weights of seven hives, taken in April 1838, from which honey had been taken in the previous autumn, and yet the season of 1838 proved so bad that I obtained no honey that autumn, and two of the hives perished in the following winter:—

Hive No. 1.	..	..	28 lbs.
" 2.	..	..	28 "
" 3.	..	..	25 "
" 4.	..	..	25 "
" 5.	..	..	24 "
" 6.	..	..	23 "
" 7.	..	..	22 "

This season my five old hives, and Nutt's hive also, are in full vigour and operation.

Henley-on-Thames, Oxfordshire, May, 1840.

SUPERIOR PLOUGHS.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Allow us, through the medium of your respectable and widely circulated journal, to draw the attention of the agricultural public to a very valuable plough which we have used for some years past, doing so under a full conviction it is a duty we owe to the public, as well as to the humble individual its inventor and maker, an *ingenious practical Ploughman*, John Adams, Cotton-end, Northampton.

The best proof we can give of its superiority, is its having for some time past obtained the best prizes at agricultural meetings; we more particularly allude to those annually held at Lord Spencer's farm at Brampton, where they have competed with all the best ploughs in the neighbourhood, and always obtained prizes; as also at the great Cottesmore meeting held on the 13th of last month, two of them contended against about 40 of the best ploughs in the kingdom (the match being open to all England), and brought home the two first prizes in class 2. See account of this meeting in the Leicester or Stamford papers. We have recommended him to attend the Smithfield Show, and to give every publicity to his invention. We shall be very happy to give any information to gentlemen willing to patronize this worthy individual, and are Sir, your obliged servants.

W. SHAW, JAS. RICE, W. SHAW. JUN.
Cotton-end, Northampton, Nov. 20th.

AGRICULTURAL LIBRARIES AND MUSEUMS.

TO THE EDITOR OF THE ESSEX STANDARD.

MR. EDITOR,—Through the medium of your valuable and widely circulated paper I would beg to call the attention of your agricultural readers to the great benefit that might be derived from the establishment of libraries and museums, in connexion with the agricultural societies of Essex. It is well known that all other professions have their libraries, whether clerical, medical, or legal; and are not the science and arts of agriculture worthy of receiving every attention that may contribute to their advancement? Is not every individual in her Majesty's dominions interested in this art? Has not government afforded every encouragement to the culture of the soil, knowing well that on it depended the prosperity of Britain as a nation, and the comfort and happiness of the people? But who are to extend our knowledge of agriculture, and by what means can it be done? Works are daily issuing from the press, conveying the experiments of philosophers and the invaluable experience of practical farmers. To whom can such men look for patronage, but to such societies as these that are now established throughout the country? Who can deny that local societies have done incalculable good, both in the improvements of stock, and the production of seeds and roots? We are thankful for all this; but there is no good reason that we should be satisfied whilst more good may be accomplished. The dissemination of reports of experiments seems to be the only means by which the science may be enabled to keep pace with the arts. Agriculture has been often much retarded by the ignorance and prejudice of those who should have cherished it with a fatherly tenderness. Many who would peruse a treatise on husbandry are deprived from the want of the knowledge which is the best and the cheapest, &c. The Farmer's Almanac and Calendar for 1841 gives much interesting information, but I shall not trespass on the time of your readers by even a bare enumeration of the advantages that would accrue to the farmer and the community at large from following this suggestion, nor the best means that might be adopted for the procuring of libraries and museums. I merely wish to bring this subject under their serious consideration, and would be glad to hear the opinion of some of your readers; and subscribe at present,

Greenstead, Dec. 2.

Q. Q.

AGRICULTURE IN IRELAND.

We notice, with the utmost satisfaction, and with the warmest approval, the proceedings of a late meeting at Loughrea, in the province of Connaught, as we find them reported in the columns of our excellent contemporary, the *Dublin Monitor*. The objects of the meeting were two—the formation of an agricultural society, and the institution of an agricultural school, in connexion with the Board of National Education. Our readers are aware that there exists at present, connected with this board, a school of agriculture and a model farm, established at the village of Glasnevin, in the suburbs of the Irish capital. The experiment having been eminently successful, the enlightened man who set it on foot, felt a natural anxiety to afford the rural districts the benefit of the like institutions; and we are justified in drawing the best auguries from the commencement of their provincial operations beyond the Shannon. We cannot put our readers in possession of the spirit and objects of the Loughrea meeting in any better way than by requesting their attention to a few extracts from the admirable speech of Mr. Blake, the Chief Remembrancer for Ireland, and a commissioner of the Board of Education, who lent the aid of his great abilities and experience upon the occasion.

Mr. Blake explained in the most interesting and lucid manner, the connection of schools of agriculture

with the general principles of the system of national education, and the peculiar importance of such seminaries in an agricultural country like Ireland.

"It had been his duty to make inquiries into the state and condition of the poor of Ireland, and to report to the Crown upon the subject; and it had also been his duty to make inquiries into the general state of education in Ireland; and it was his duty at present to take part in administering that system which the liberality of the government had established for the good and prosperity of the poorer classes (*Cheers*). These duties enabled him to become acquainted, both with the domestic condition of the poorer classes, and with the state of education in the country—(*hear*); and he could not conceive means better calculated for the improvement of the poorer classes, than by promoting good education. When he spoke of good education let him not be understood as speaking merely of reading, writing, and ciphering (*Hear*). They might teach a man to read, write, and cipher, and yet give him no education; for he (Mr. Blake) considered that education was that which was to form the mind, and which was not only to fit a man so as to go through the world, and to keep himself, so far as nature and circumstances would enable him, above poverty, but above all, to prepare himself for his last and great end (*Loud cheers*). That was the principle they had ever acted upon, and that was the principle they intended to sustain—and he trusted that they would be enabled, by a continuance of that line of conduct, to confer material benefit upon the people, provided the country enabled them not only to give that species of education—such as reading, writing, ciphering—but that education which would prepare the poorer classes for the walks of life for which they were destined—which would give them an opportunity, by pursuing a life of honest industry, to advance themselves in society, which would elevate them from poverty to competence, and train them up in habits of good order and industry (*Cheers*). That would train them up in habits of peace, obedience to the laws—and also in that principle which he (Mr. Blake) had remembered ever to have been the ruling principle of the people of that part of the country, devotion and loyalty to their sovereign (*Cheers*). Yes, that was the species of education the board were desirous of affording; and when he reflected that Ireland was essentially, he might say, an agricultural country—when he bore in mind that agriculture alone afforded employment to the great mass of the people, and when he considered that agriculture—they would pardon him for saying it—was in a backward state—(*hear, hear*)—he unhesitatingly came to the conclusion, that to forward their agricultural interests, and to improve the people in that respect, nothing could be more desirable than to establish agricultural schools throughout the country, that would give to the children of the poorer class and the peasantry generally, education in the farm-yard,—that would teach them what to do, and do successfully. (*Loud cheers*). It had been observed to him within the last few weeks, that Ireland stood in need of capital, for want of which her people could not advance forward in any branch of education and improvement in comparison with other countries. Why, there could be no more mistaken opinion than this. True it was that their wealth was not considerable, but he would tell them that the best capital they could possess, was the capital which consisted in industrious habits. He was speaking truly (*Hear*). The best capital they could possess was the existence of good order, good-will towards each other, and industrious habits. That was to be sure an invisible capital—one they

could not perceive with their eyes, but it was one that produced money—the absence of which they gave as a reason why Ireland could not advance herself (*Cheers*). He would ask them to look at Spain, that had the mines of Mexico and Peru in its possession. Was it rich notwithstanding? Compare it with England, that had neither, and what would they find? Why, that England was indebted for all that she possessed, and the flourishing condition of her affairs, to the habits of industry in which her people were trained up—and which characterized them wherever they were to be met (*Hear hear*). In England, the children of the poorer classes, from their earliest childhood, receive most important education from the industrious habits of those who are older than they are, and whose agricultural operations they witness and acquire a knowledge of (*Hear, hear*). Besides, they imbibe early notions of cleanliness, and of every thing calculated to secure domestic comfort, from the general attention they see exhibited in these respects around them. He had been for some years of opinion that such schools as were proposed would be of great benefit to the country. He had taken an active part in establishing and superintending one at Glasnevin, in the neighbourhood of Dublin, and which they meant as a model farm for Ireland. The teachers of the national schools were instructed at that farm, which contained thirty-one Irish acres, which were equal to fifty English ones; and here he (Mr. Blake) would observe that the commissioners did not, as might be thought, farm to try an experiment (*Hear*). The farmer paid for that land 8*l.* an acre—it was very fine land to be sure, and he had a considerable profit by it (*Hear*). He (Mr. Blake) had mentioned this fact to a person some weeks ago, and it was urged by this person, that as the farmer lived so near Dublin he got manure at a cheap rate. His reply was this; he was not permitted to draw manure from Dublin, but to procure it off his own farm (*Hear, hear*). This farmer of the model farm at Glasnevin rented 18 acres of oats and wheat, $4\frac{1}{2}$ acres of turnips and mangel wurzel, 8 acres of potatoes, with about 3 acres of cabbages, carrots, &c., and 14 acres of grass. These crops afforded him sufficient food for his cattle throughout the year. Now he (Mr. Blake) wished the meeting to observe that the farmer of whom he spoke had altogether thirty-one Irish acres, or 31 acres $3\frac{1}{2}$ perches statute measure; and how much stock did they think he had? They had heard what wheat, oats, &c. &c., he had. His stock consisted of 4 horses, 13 milch cows, 3 heifers, and 3 calves—in all 16 head of cattle and 3 calves, and he had at present 11 large pigs (*Hear*). The milch cows, besides supplying his (the farmer's) family with milk and butter, made him on an average, during the year, 13*s.* 6*d.* per day, or 28*l.* 7*s.* per year, paying at the rate of better than 5*l.* per acre by the cattle alone. This should be considered, that he got no extraordinary price for his produce—the usual rates being in summer for new milk 8*d.* per gallon, and for butter 10*d.* per lb. In winter 10*d.* per gallon for milk, and for butter 1*s.* per lb. His rent per annum amounted to 257*l.*, and, with taxes and incidental expenses, his yearly expenditure amounted to 270*l.* 10*s.* (*Hear, hear, hear*). This farmer, on balancing his accounts of last year, found that for the year he had a clear profit of 30*l.*, besides the farm produce for his family. He had a great many difficulties and disadvantages to contend with, which would not again occur, up to the present date. He had paid nearly 150*l.* of his rent; and would be given to the 1st of March to pay the remainder by the cattle; besides, he had all his grain and the

greater part of his potatoes to dispose of, so that upon the whole he might safely calculate on at least 100*l.* of profit, independent of the keep of his family in potatoes, milk, butter, cheese, eggs, bacon, poultry, vegetables, &c. &c.; and the modes by which he could accomplish all this were as follow:—A scientific rotation, judicious cropping, but above all by the green crops, which enabled him to keep an increased quantity of cattle in the house, winter and summer, and of course on little ground, which supplied an immensity of manure (*Hear, hear*). This (continued Mr. Blake) was cheering intelligence, and would prove of immense service as an example to others. The teacher of the model farm instructs his pupils every morning for one hour; they then get their breakfasts; they afterwards go to the field and work all day to dinner; and if it be a fine day, there is no fixed hour for that repast, as they take advantage of the sunshine; and after dinner they turn to industry again till sunset closes their labour for the day (*Hear*). The pupils were subsequently for two or three years instructed in agricultural science, which on each succeeding day they see carried into practice (*Hear, hear*). The teachers, when they came up to Dublin, insinuated that there must be a degree of deception practised when they were told that the cows were kept within doors; but when they became more intimately acquainted with all the circumstances concerning them, they then became satisfied, particularly when they saw that they were kept in good condition, and gave a considerable quantity of milk (*Hear*). These three milch cows were sent out to exercise during a small portion of the day, but they then returned to a concern appropriated for them, and they (the Board) had ascertained that during the whole year round they gave more milk than the cows that were left out to graze (*Hear, hear*). He (Mr. Blake) might mention that a visit had been paid by a lady to the school at Glasnevin, whose name it was only necessary to repeat to be greeted with every demonstration of respect—he alluded to Lady Clanricarde (*Loud cheers*). She went there to satisfy herself—she ascertained what quantity of milk the cows gave, and expressed her approval of the system (*Hear, hear, and cheers*). Those who are engaged on this model farm are not only obliged to currycomb the cow, but they must keep the pig-sty clean, and the pig washed (*Loud laughter*). When the young men came up to town for instruction, they became very hoity-toity when given the general business of the place to do; but when it came to the washing of the pig, they grunted as much as ever the pig had done (*Continued laughter*). Some of them said they would not do such a thing, but he (Mr. Blake) had said to them, that they ought to know that cleanliness was as necessary to the brute creation as to mankind; and, by the bye, mankind were improving in habits of cleanliness as Father Matthew was progressing in his moral work (*Hear, hear, and cheers*). That reverend gentleman achieved a reform almost miraculous, and the country was greatly indebted to him (*Hear, hear*). He moved in a circle of perpetual benevolence, doing the greatest possible good to society in general, and he (Mr. Blake) would call upon those who valued the benefits that advocate of temperance had conferred on society, and still continued to extend to it, to come forward and aid that cause in advancing the prospects of the people by a system of agricultural improvement." (*Loud cheers*). These lessons of self-dependence are above price; the people of Ireland stand in need of them; and there never was a moment when it was of so much consequence to put them forward, as Mr. Blake did upon this occasion.

DICTIONARY OF TERMS

USED IN

AGRICULTURE AND ITS KINDRED SCIENCES.

(FROM THE CULTIVATOR.)

ATMOSPHERE. That mass of thin, elastic, and usually invisible fluid, in which the earth floats, and with which that and other bodies are surrounded. The height of the atmosphere is calculated at 46 miles; its pressure on the earth to be equal to that of a column of water 32½ feet high, and on the body of a middling sized man at 32,440 pounds. The density of the atmosphere diminishes in geometrical, while the height increases in arithmetical progression. In all the functions of animal and vegetable life, the atmosphere acts a most important part. It is composed of oxygen and hydrogen, carbonic gas, aqueous vapour, and a minute quantity of hydrogen. In addition to these permanent ingredients, it contains a multitude of other substances, in the form of vapour or gas, varying in kind and quantity according to circumstances, but all exercising more or less an influence on the animal and vegetable kingdoms. Of those that affect the animal, that undetermined something called *miasma*, which produces diseases to such an extent as to render some of the most fertile districts of the globe scarcely habitable, may be adduced; and of those that act on the vegetable, the ammoniacal products, the result of fermentation, may be mentioned. By stirring the earth, the absorption of these atmospheric agents is greatly promoted, and the consequent vegetation of plants proportionably accelerated.

AWNS. The long bristle-like terminations of the envelope of the kernel in some kinds of plants, is termed the *awn* or beard. It is particularly conspicuous in some kinds of winter wheat, in most varieties of spring wheat, and in all the kinds of barley. Wheat without beards can be converted into the bearded, and vice versa, by changing the sowing from autumn to spring, or from spring to autumn. Of all grains, barley is the most liberally provided with this formidable appendage.

AZOTE. A gas, which constitutes the most important portion of the air, and is sometimes called nitrogen, because one of the most essential properties of its base is that, in conjunction with oxygen, it composes nitric acid. Though in itself fatal to animal life, it abounds in animal substances, and forms ammonia with their hydrogen when burned. The great difference between animal and vegetable substances lies in this, the former contains azote, and the latter is destitute of it. Owing to its feeble affinity for other substances, the number of compounds into which azote enters is small, and its influence on agriculture, with the exception of its effect when combined with animal matter, proportionably limited.

BACON. The flesh of swine that has been subjected to the process of smoking over a wood fire is termed bacon: but the parts to which this term is most usually applied, and which are usually chosen for bacon, are the hams, and the cheeks or jowls. A good ham is one of the most excellent kinds of food, and this goodness in a great measure is depending on their preparation. The kinds most celebrated are the Westphalia, principally brought from Hamburg, the Hampshire, from

England, and in the United States, the Virginia or southern ham generally. It is not known that there is anything peculiar in the feeding or pickling the Hampshire hams, but their superiority is attributed to the manner in which they are smoked. This is performed in large chambers in the third or fourth stories of buildings, to which smoke is conducted in tubes from fires of oak or maple chips in the cellar of the building. In passing this distance, the vapour which smoke usually holds is deposited, and the hams are perfectly dry and cool during the whole process. The Hampshire bacon is made from pork not scalded in dressing, but deprived of the hair by quick fires of straw or other combustible materials. This singeing is repeated two or three times as the case may require, when the hog is cut up, pickled, and carefully smoked. These hams are particularly hard and fine, which is attributed to the skin not having been softened by scalding. The Virginia or southern hams are supposed to owe much of their superior flavour to the animals being allowed to run at large the most of the time of feeding; to their being much in the woods, and wild, giving more firmness to the muscles; and to their feeding much on acorns and other products of the forests. Virginia hams are usually small, the hogs themselves rarely weighing over two hundred; and the pickling and smoking performed in the best manner. The great defects in smoking commonly are, the hams are too near the fire, and the house is too tight. The hams are in consequence kept too warm from the fire, and the condensation of the vapour keeps them wet. Dryness while smoking is indispensable to good bacon.

BARK. Modern writers on vegetable physiology divide plants into *exogenous* and *endogenous*; in the first of which the additions that constitute growth are made successively on the exterior side of the parts from which they proceed, and in the last the growth is the result of additions made internally. The trees of northern regions, such as the pine, oak, and elm, belong to the first class; the trees of tropical climes, such as the palm, cane, bamboo, and all grain bearing plants, belong to the last. The first named trees or plants only have a proper bark. In this class of vegetables, every year adds a new layer of wood, which is the *albumum*, and a new layer of bark, which is denominated the *liber*. Bark, then, is divided into three parts; the inner layer called the *liber*, the zone of successive outer layers, called the cellular envelope, and the exterior surface of this envelope, which is termed the epidermis. A cross section of the bark of the basswood or elm will exhibit this structure in perfection. The bark exercises an important influence in preserving plants from the effect of frost, and the albumum from injury, and cannot be removed without inflicting severe or fatal injuries to the trees. A healthy and clean bark is essential to a vigorous growth; and an occasional wash of soap, lime, or ashes, is found beneficial when trees are attacked by insects or mosses.

BARLEY. One of the common cultivated grains, in use from time immemorial, and extensively cultivated. It has a thick spike, with long awns attached to the kernel. It is divided into several kinds, of which the most common are the long eared or two rowed barley, the square or six rowed, and sprat or battle door barley. The six rowed is most commonly cultivated in the north of England and Scotland, having the reputation

of being the hardest plant. In this country the long eared or two rowed has usually obtained the preference, producing a whiter, fairer grain, and smutting less than other kinds. Barley in this country is principally used for malting; in other countries it is extensively used for bread, and for feeding cattle. Barley has met with little favour in this country as food for horses, but there is nothing improper in the grain, as is evident from the fact that barley is almost the only grain given to horses in the east, where the best and finest horses are found. The difficulty lies in the mode of feeding. Barley is one of the best substitutes for corn in making pork. It requires a rich soil, rather moist than dry; and the ground should be made fine before the seed is sown. From two to two and a half bushels of seed per acre is the usual quantity allowed.

BAROMETER. An instrument for measuring the weight of the air. Torricelli was the inventor, about the beginning of the 17th century. Torricelli reasoned that as the pressure of the atmosphere was equal to a column of water about 33 feet high, mercury, which is nearly 14 times heavier, would rise about 30 inches, and the result justified his conclusion. The changes in the height of the column of mercury preceding, or during changes of the weather, have given great value to this instrument, and obtained for it, among common people, the name of the *weather glass*, as foretelling the weather. It is a most valuable instrument at sea, its rapid fall previous to violent storms putting the mariner on his guard, and since its use has been understood has been the means of saving many valuable vessels and lives annually. It might be of essential service to farmers; but as yet has not received from them the attention it deserves, as connected with meteorology, a science in which they are so much interested.

BASIN. A term in geology, used to designate a section of country converging to a point lower than the remainder, which part is most usually occupied by lakes, swamps, or rivers. Thus we speak of the basin of the Hudson, north of the Highlands; that of the Mohawk, above little Falls; or the basins of Lake Erie and Lake Ontario. The best defined basins of Europe are those of London and Paris. The first of these basins is a bed of clay in some places 700 feet in thickness. The basin of Paris is formed of chalk, alternating with limestone, marls, and gypsum.

BAULK. Ground left unturned between the furrow-slices in ploughing, and also strips of ground usually in grass between ploughed ridges, as in common field lands. These are the European definitions; in this country farmers give the term rather wider definition, and include the strips of grass land that border ploughed fields, and occupied by fences, &c. When fences are removed, such baulks are found the richest part of the fields. Few things indicate more clearly the general skill and conduct of the farmer than the baulks of his fields. The skilful ploughman is at once distinguished by his baulks, or rather by the absence of them, except where prevention is impossible. In such cases every precaution is taken to keep them from weeds and rubbish of all kinds.

BEAN. The plants that come under this designation are of two species, *Phaseolus* and *Vicia*. To the first belong the varieties of pole and bush beans usually cultivated in gardens, while the last, *Vicia faba*, is the bean known as the Windsor

or horse bean, cultivated extensively in England as a field bean, and considered as of great value as food for animals of all kinds. In Europe, the bean is used, mixed either with peas or oats or alone, ground into meal, for feeding horses, fattening pork, or even as food for man. It is considered one of the most nutritive kinds of food; but in this country is little used, corn-meal being considered a preferable substitute to bean-meal, either for man or beast. The prices which are obtained for the common white bean would seem to render it a proper article of culture on light soils, where it succeeds better than on those of a heavier kind.

BEER. A liquor produced by brewing together malt, hops, and water; and when properly made is a nourishing and wholesome drink. Beer is, however, like most of the other liquors of commerce and trade, adulterated to a frightful extent by the introduction of ingredients of a cheaper nature than malt or hops, if not absolutely noxious or poisonous in their effects on the system. The quantity of beer consumed by English labourers is astonishing, especially during harvest, when it is provided by the employer. The greater part of the barley grown in this country, as well as in England, is made into beer, though the establishments for the manufacture here are on a small scale, compared with the magnificent and expensive ones of that country. If the good old home-brewed beer, from malt and hops, could be substituted for strong beer or whiskey, among the classes that consume the most of these drinks, we think the health and morals of the country would receive a decided improvement.

BEET. A common vegetable, of which there are several varieties, such as the scarce and common beet of our gardens, the mangel wurtzel or field beet, cultivated for cattle, and the white Siberian beet, grown principally for the sugar manufacture. The mangel wurtzel is a valuable root, producing heavy crops, and being excellent food for sheep, fattening animals, and for milch cows. It requires a rich loam. The manufacture of sugar from beets in its most improved state consists in slicing the roots thin after they are well washed, drying them thoroughly in ovens, grinding them to powder, and then by putting this powder into water dissolving the sugar while the fibre and the mucilage, which rendered the crystallization difficult, remains unchanged, and is separated from the sweet solution by straining. This is then evaporated, and the syrup crystallized in the usual manner. Beets thus treated yield from eight to ten per cent. For cooking, medium sized beets are to be preferred, as they are found to be sweeter and less fibrous than those of larger size. Unlike most other roots, beets are fit for use as soon as they attain a sufficient size; but it does not attain its full perfection till October, and when wanted for winter use should stand as long as consistent with safety from frost.

BEE. (*Apis mellifica*, L.) A hymenopterous insect, of the family *Apiaria*, and well known as the honey bee. The valuable products of this insect, and its singular habits and instincts, have caused it to receive more attention than has perhaps been given to any other, (unless the silk worm is excepted;) and the naturalists of Europe, among whom we may mention Reaumur, Cuvier, and Huber, have each largely written on this subject. The treatise of Huber is a model of such investigation and writing, and though later observation would seem to indicate that on some points he had

been mistaken, still his work is likely to remain the standard authority in the natural history of the bee.

There are three sorts of individuals that make up a community or hive of bees. The female mother, or, as she is usually called, the *Queen*, the males or *drones*, and the *working bees*. These last have been improperly termed *neuters*, since the experiments of Huber show they are females, and may at the pleasure of the community, and by an interesting process, be converted into the prolific Queen of the hive. Reaumur asserts that the female in the spring lays as many as 12,000 eggs in the space of 24 days. The product of the bee is of four kinds, the honey, wax, pollen, and propolis. The *Aoney* is drawn from the flowers, and undergoes little change, as is evident from its occasionally partaking of the narcotic or intoxicating effects of the plants from which it is derived. Age usually deprives it of these noxious qualities. The *wax* is elaborated from the honey by the bee. It is formed between the abdominal rings of the working bees into plates, and is used for making the combs. The *pollen* or *bee bread*, under different modifications appears to constitute a large part of the food of the bees and their larvæ; while the *propolis* is used for lining the hives, closing unnecessary holes, &c. The working bees, and the queen also, secrete an active poison, which is retained in a small bladder at the root of the stings, and through which it is ejected into the wound by pressure. The Mexicans have a bee, an excellent worker, domesticated like our common bee, but which has no sting, and in its habits is as harmless as the house fly. Several attempts to introduce them into the United States have failed; we believe from their inability to endure the cold of our winters. Mr. Weeks, of Vermont, has paid more attention to the bee than probably any other individual in the United States, and he has in several valuable papers given to the public the result of his observations, correcting errors into which others have fallen, and disclosing many new and valuable facts in regard to their habits and proper treatment.

BEEF. Of all kinds of animal food used, it is believed there is none finer flavoured, more easily digested, or more nutritious than beef; certainly there is none more universally used as an article of human sustenance. To have beef in perfection it is necessary that the animal should be well fed; that the beast should be disposed to take on fat at the points where it is of the most value; that the pasture should be clean and free from noxious weeds, or if stall-fed, that the substances used for feeding should be sweet, and such as will communicate no unpleasant taste to the flesh; and finally, if salted, that the pickle should be carefully made, containing salt enough to preserve the meat perfectly sweet, yet not enough to harden the lean to the consistence and colour of mahogany. Dried beef, properly prepared, is an excellent article, and one which should be found among the stores of every farmer. In the tropical regions beef is preserved by being cut, as soon as killed, into thin slices, and thoroughly dried in the sun. Such beef, in the language of the country, is called jerked beef. In some parts of the world, particularly in Abyssinia, beef is eaten raw. At a feast, the animal is tied to the door post: the flesh is cut from the living beast, is served to the guests, the muscles still quivering with life, and the more distinct this action, the more highly is the flesh esteemed.

BITUMEN. This is the name of a species in mineralogy, chiefly interesting as forming the basis of a large part of the coals termed mineral coal, an article of vast importance to the arts, commerce, and comforts of life. It has acquired several names, from its appearance in its different states of consistency. *Naptha* is a fluid, of a yellowish tinge, transparent, and with a peculiar odour. It consists of carbon 82.20, and hydrogen 14.80. It is found in many parts of the world. *Petroleum* is of thicker consistence than *naptha*, in some cases resembling in colour and consistence, common tar. It is in this state that it is found in such vast quantities in the United States, principally at the salines on the Kenhawa and Muskingum, at the depth of from 300 to 600 feet. It is also found on the Olean creek in this state, and is the article known as Seneca oil. At Rainonhong in Birmah, is a hill containing coal, in which more than 500 pits have been dug for the collection of the petroleum, and from which 400,000 hogheads are taken annually. In boring for salt in 1838, on the Tombigbee river in Alabama, at the depth of 600 feet, the miners struck a vein of petroleum, which, flowing over the top in immense quantities, spread itself over the river for some fifty miles, and in that state was set on fire, forming a striking and brilliant spectacle. Compact bitumen, or *Asphaltum*, has lately attracted much notice from a new application, which, in connection with some other substances, has been made of it in paving streets, where its durability has been found to exceed granite. All the coal west of the Allegany mountains is bituminous, and some large beds of it occur on the east of this range.

BLAST. A disease of plants, to which by different writers has been given the name of blight, blast, and mildew. The latter, however, is evidently a distinct disease, and produced by different causes. Blast or blight has been divided into several varieties, affecting plants in different ways and with varying intensity. Among these may be mentioned blight originating from cold. The north or easterly winds of spring often produce this, by freezing the tender shoots, or by retarding the flow of the juices. Thus the young fruits are deprived of their nourishment, and fall from the stem. Blast or blight from sultry wet weather, originating contagious diseases of plants, is another of the forms noted, and mildew sometimes seems to result from this cause. The blight which sometimes strikes the grain of whole districts, would seem to be owing to atmospheric causes thus generated, since the disease appears to follow, and be governed by the course of the winds. Blast from the want of nourishment, is another form of the disease, but of which the cause is usually obvious. Impoverished land, too great quantities of seed, or injudicious culture, may produce this blight, but in this country it is oftener observed as an effect of drought. Blast from *fungi* is the kind of blight which attacks grain also, and which has been erroneously attributed to particular plants, as the barberry bush, since the fungi on the leaves of this plant, and those that cause the blight in wheat, are clearly distinct.

BLINDNESS. No animal is so subject to blindness as the horse, and in most cases it can be clearly traced to the treatment they receive. Severe drawing in the harness, or racing, either on the course or otherwise, will not unfrequently produce blindness, sometimes temporary, but

often permanent. An examination of the pupils of the eye, will most usually enable an observer to determine whether there is blindness or not. If the pupils, when exposed to light after being in a dark stable, contract, the horse is not blind; if they contract unequally, or one not at all, then the vision is imperfect, or gone in one of the eyes. The hand placed close over the eye for a few minutes, so as to render the eye dark, will show the dilation or contraction of the pupil, when no other convenient means of excluding light are at hand. A horse, blind with both eyes, will usually have his ears in constant and rapid motion, directing them in quick succession to every quarter, relying on hearing rather than sight; he will lift his feet high, as if he were stepping over some obstacle, when there is another actually in the way. It is a common saying, that *wall-eyed* horses are never blind. This is probably an error; as there appears no difference in their structure to warrant such an inference.

BLOOD. The circulating fluid of animal bodies, and by means of which the functions of nutrition and life are carried on. Blood is usually divided into arterial blood, which is that given by the lungs to the heart, and by that thrown into the arteries of the system, and the venous blood, which is returned to the lungs through the veins from the surface and extremities. The venous blood is of a dark purple hue when passed into the lungs, and it leaves them of a rich vermilion colour. This change is effected by the absorption, while in the lungs, of oxygen, from the atmospheric air with which they are filled in breathing. Messrs. Macaire and Marcet of Geneva, in a series of experiments on the blood, demonstrated that the difference between arterial and venous blood, was as follows:—

	Carbon.	Oxygen.	Nitrogen.	Hydrogen.
Arterial blood,	50.2	26.3	16.3	6.6
Venous blood,	55.7	21.7	16.2	6.4

Blood is of much use in some of the manufacturing processes, some valuable colouring pigments being derived from it. From the large quantities of albumen it contains, it is the principal ingredient in freeing sugar or molasses from its impurities, previous to the conversion into lump or loaf sugar. Blood is found to be one of the most powerful of manures when applied to the ground; and large quantities of it, mixed with other materials, are obtained from the slaughter-houses of our principal cities, and appropriated to this purpose. When animals are attacked with fever, one of the surest remedies is bleeding, either local or general, as the cause may demand.

BOG. A swampy piece of ground, usually containing large quantities of vegetable matter, frequently of the nature of a quagmire, and with tufts of coarse grass mingled with aquatic plants spread over its surface, is in Europe, and usually in this country, termed a bog. Such pieces of amphibious soil, are not common in the United States, but in Scotland and Ireland, a very considerable portion of the surface is occupied by such non-productive lands. Where bogs exist, the only modes of bringing them under culture are, by draining or covering the surface with firm earth, and frequently it is necessary to combine both operations. Draining the land consolidates the surface, and affords opportunity to cut off the bogs or coarse tufts of grass, and introduce more valuable grasses, if not to submit it to the action

of the plough. Where the boggy ground is mostly composed of vegetable matter it is desirable to incorporate the common earths with the surface, thus giving increased powers of production, and greater firmness. Gravel or sand may be carried on when the ground is frozen, if the surface is not hard enough at other times, and by thus uniting draining and the application of earths to impart consistence, such soils, worthless in their natural state, are rendered most valuable and productive.

BONE. The frame-work of animals, constituting the osseous structure or skeleton, is called bone, and is composed of several ingredients, the principal one of which is the earth called *phosphate of lime*. This material appears to have been selected for this purpose, as forming much harder compounds with animal membrane than the carbonate, which is used in the composition of shells. The harder and more solid the bone, the greater the proportion of the phosphate; thus the bony portions of the ear, are very hard, and they consist almost wholly of the phosphate. The long part of the teeth contains considerable carbonate, but the enamel or the cutting parts, which sometimes approaches to the hardness of steel, is nearly pure phosphate. The composition of bone can be determined by fire, or more accurately by the acids; and they are found to consist of phosphate of lime, a small quantity of carbonate of lime, the whole cemented together by a strong elastic animal membrane, to which is added oil, of which the principal depository is the interior of the bone. The use of bone dust, or bones reduced to powder by grinding, has introduced a new era in agriculture in some parts of the world. Crushed bones were first extensively used as a manure in the counties of Lincoln and York, about the beginning of the present century; and they are now considered the best and most efficacious application that can be made to the soil. It has been estimated that by extending the growth of the turnip crop to districts where it was not before grown, and thus increasing the means of raising cattle and sheep, and through these indirectly, the culture of wheat and barley, the means of subsistence in England has been increased one-fifth. Twelve bushels per acre drilled in, is the usual allowance, but it is sometimes sown broadcast, and the quantity varied from ten to twenty bushels an acre. The experience of farmers who have used this manure, shows that it succeeds best on light, dry, calcareous loams, or in general on any soils that are dry, and do not contain too much alumine. If sown broadcast, the better way is to mix the bone dust with earth and let it slightly ferment before spreading on the land. With turnips, and for these as a manure it is unrivalled, the practice is to drill it in with the seed. Bones that have undergone fermentation, are superior to those that have not undergone this process, and their effect on plants is more rapid. Where land is much impoverished, thirty bushels per acre have been used with success. In this country they are well spoken of, and mills for grinding the bones have been erected in various places. It is evident from the chemical composition of the bone (salts of lime and animal matter) that its action on plants must be energetic, and such is found to be the case. The finer the dust the more rapid its action, while as a matter of course, that which is not so fine is the most durable in its effects.

BOTS. It is well known that most animals are

infested with particular kinds of parasitic vermin that prey upon them, either externally or internally. Thus the ox, horse, sheep, and even man himself in the tropical regions, are attacked by the fly, the species different in the different animals, and the larvæ deposited on the hair, on the mucous membrane of the nose, or in the flesh, lives on the body to which it is attached until it is prepared to undergo its last transformation and become a perfect insect. These flies belong to the genus *Cestrus*, of Linn. and the parent of the bot, or the one that attacks horses, is the *Cestrus equi*. The female of this fly is known at once by the extremity of the abdomen being lengthened, and turned under the belly so as to form an ovipositor for placing the eggs on the hair of the horse. As this fly does not bite, it does not occasion that terror to the animal it attacks, as is produced by some of the species of gad-fly, and a horse will continue quietly feeding while the *cestrus*, continually on the wing, is busy depositing the eggs on the hairs. The place selected by the fly is generally on the inside of the knees, or the sides of the horse, always avoiding those parts that the horse is unable to reach with his mouth or tongue. On these points the eggs are rapidly deposited, being fastened to the hair by a glutinous substance. This substance dries, and the egg is firmly attached to the hair, where they remain some four or five days, at which time the larvæ is ready to burst the envelop, and a slight application of warmth and moisture is sufficient to effect this. If at this time the tongue of the horse passes over the hairs to which the larvæ are attached, the operculum or cell is instantly opened, and the worm, small and white, adhering to the tongue, passes with the food into the stomach. This fact of the quickness with which the living worm will be produced when the egg is ripe, may easily be tested by placing some hair containing eggs or nits in the hand slightly moistened with warm water or spittle, and closing it upon them. They may even sometimes be hatched by drawing the moistened hand slowly over the hair of the horse, the worms, lively and vigorous, remaining on the hand when removed. When the bot has descended into the stomach of the horse, it attaches itself to every part of the inner coat, but oftener about the *pylorus* than elsewhere. From this account of its production, it is evident the numbers in the stomach may vary from a dozen, or twenty, to several hundreds. They are usually in clusters, attached to the membrane of the stomach by two hooks or tentaculæ. Some writers have maintained that these hooks are on the tail, instead of the head of the animal, and consequently as it is suspended by that extremity, the idea of its penetrating the coat of the stomach, and thus causing death, is absurd. The researches of Messrs. Youatt and Clark, however, prove that it is by the head the insect is attached, and that they may at times prove fatal, though such instances they conclude are very rare, and that on the whole the bot is really productive of injury to the horse. When the bot has attained its growth, it quits its hold, and passing through the intestinal canal, falls to the ground, in which it secretes itself and enters the chrysalis state, from which in due time it emerges, a perfect insect, and recommences its round of propagation.

BOULDERS. In almost every part of the world masses of rock or stone are found, from the weight of many tons down to a few ounces in size, and rounded by attrition, or angular, as when broken

from the quarry. Such rocks are frequently many miles from the place of their original formation and deposit, and by fixing their original location, they greatly aid in determining the nature and direction of the causes that in former ages have acted on the face of the earth. In examining the country from Boston to the Mississippi, and tracing the boulders which are scattered over almost all the whole of this extensive region to their original deposit, it will be found that they have been in nearly every instance driven from the north in a southern direction. Thus the greywacke boulders found in the valleys of Berkshire, are traced to the west and north of the Hoosic range, over which they have evidently been forced. All are aware that there is no primitive rocks south of the Ontario in the state of New York, yet the whole surface is found sprinkled with boulders, which, from the character of the rocks, must have been derived from the primitive ranges in the St. Lawrence district and north of the Ontario. Boulders of gneiss, weighing many tons, are found on the elevated lands of Allegany and other southern counties, which have evidently been transported from the north to their present situation. Perhaps there are few of the rocks of the transition or secondary classes more distinctly marked, and more easily known, than the red sandstone of the whole southern shore of Lake Ontario, particularly the strata immediately under the bed of iron ore that reaches from Oneida county into Canada; yet blocks of this very stone may be found in great numbers, on the high lands of the dividing ridge, forty miles south of the outcrop of this deposit near the lake, and twelve or fifteen hundred feet higher than the original location. So to the south of the great limestone deposit, boulders of this rock are very numerous. Within five miles, where stones are collected for walls, these boulders are found in some places to constitute one-half or one-third of the stones gathered from the fields. As we recede to the south, their number and size become less, and scarcely a trace of them can be found. North of the outcrop of this limestone formation, few or no boulders of this stone are found, even though all the streams flow across it in that direction, thus demonstrating that their removal to the elevated ranges south, was effected by force, and that the force exerted was from a northern quarter. Boulders exercise much influence on the agriculture of a country, by their size and numbers and by the material of which they are composed. Thus a country occupied by limestone or gypseous boulders, is more likely to be adapted to the culture of wheat than one in which the granitic form prevails. So uniform has been the course of the boulders on this continent, the northern part particularly, that the presence of any kind of rock or earth, may be considered proof that the location of the rock or the strata from which the earth was formed, may be found to the north of its present position.

ON PULVERISING SOILS, AS A MEANS OF IMPROVING THEM.—By JOHN FURN.—The fertility of adhesive soils becomes greatly increased by frequently exposing them to the atmosphere, by which means they become so much pulverised, as to encourage the growth of the fibres of plants. One cause of the unproductiveness of adhesive soils is, that air cannot penetrate to the seeds of plants; preventing the germination of the former, and the future well being of the

other. In such cases, the roots of plants can receive no advantage from the carbonaceous matter which exists in the atmosphere, from the decomposition of animal and vegetable substances on the earth's surface. Another cause of unproductiveness is, that such soils cannot retain a sufficient quantity of moisture, but are saturated upon the surface at one time, and burnt as hard as a brick at another. In the former case, the fibres of plants are generally rotted, whilst in the latter they are torn in pieces by the cracks in the ground. The moisture will neither sink freely, nor rise freely, when the sun has evaporated the moisture on the surface. Again, in such soils the full advantage of manure cannot be realized, as it must be within the reach of the atmosphere before those changes can be effected, by which alone it can become the nourishment of plants. Hence the importance of trenching, ridging, and frequent digging, by which a large portion of the soil is exposed to the atmosphere, and rendered more friable and open in its texture. These operations may be performed as soon as the ground is clean. The depth will depend upon the nature of the soil and subsoil; strong soils can scarcely be dug or trenched too deep; nor indeed can any soil, unless the subsoil contains something noxious to vegetation. Pulverisation ought to go on during the process of vegetation, by the free use of the fork or hoe. In summer such operations prevent the soil getting dried up, as evaporation proceeds more rapidly from a hard surface than a loose one. It is some time before water can penetrate a hard surface; upon a loose one it sinks to the roots at once. *The more soil is stirred among crops of any description, the more fibres will plants produce, and this increase of strength to the plants will more than pay the labour.* Independent of the neat and orderly appearance of the DRILL SYSTEM among culinary vegetables, it possesses the advantage of enabling us freely to stir the soil: for this purpose I consider a three pronged fork preferable to a hoe, as by using the latter the ground gets hard below. Believing pulverisation to be of great importance for loosening the texture of strong soils, enabling the fibres of plants to run in all directions in search of food, imbibing and imparting a sufficiency of moisture, without receiving too much, or retaining it too long, and also as tending to eradicate deleterious properties in the soil, I should wish to see it more generally adopted, and extended to the cultivation of many of our field crops.—*Exotic Nursery, King's Road.*

TO "EXPERIMENTALIST."

It does not appear that *Melilotus macrorrhiza* (long-rooted melilot or honey lotus) was cultivated in England for green fodder, nor that it can be the sweet scented lotus. In the catalogue of the *Hortus Britannicus* we find *M. Macrorrhiza*—a perennial yellow, a native of Hungary, 1801; 3 feet high. *M. Suaveolens* (there is no mention of *odorata*) sweet-scented perennial *Dahuria*, 1824, yellow, 3 feet high.

"The white, or Siberian melilot rises several feet high, with a strong branching stem, was strongly recommended by Thouin to the Agricultural Society of Paris in 1788, and has been tried occasionally with some success by various agriculturists, without, however, having been generally adopted. It will bear four cuttings in the year, and produces a very great quantity of green fodder. It should be cut before the stems become woody, and thus it will continue several years in the ground, although it is naturally biennial."—*Penny Cycl.* vol. xv. p. 80.

Bokhara clover we believe to be new to England, but our enquiries are not yet complete; it cannot be *altissimâ*, nor *Cabul clover*, nor *melilotus arboræ*; Turkey; 15 feet; 1826."

The last has the habits of a shrub. The *Siberian* appears to have been long known to answer to the *Bokhara*.

ON DRAINING AND IMPROVING MOSS LAND.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Your correspondent, a Farmer North of the *Tweed*, is again, through the medium of your columns, respectfully asking information in reference to the best means of improving moss land, and as this is a department in which I have had some years experience, I respond to his call to render him the little information I can contain in a communication of this kind. In respect to draining, my system is that adopted on Chat-Moss, but I think to have improved, or rather better carried out the intention of it by cutting my drains deeper, and allowing a much longer period for the surface to consolidate before the drains are covered up than has hitherto been the practice in any first operations on the moss before alluded to.

As regards the nature of bog, I apprehend that moss adverted to by the Farmer North of the *Tweed* is of a much better quality than either Chat Moss, or White Moss, (both near Manchester) for these are so soft, neither horses nor men can walk on the surface: this is the case, however well they are drained, until after some years cultivation, and experience has often and sufficiently proved, that none but sod drains will answer on these soft lands. I would also here beg to remark, that these drains when properly made are neither shoulder nor wedge entirely, but the covering and presses equally on the sides, as well as on a small, but well-formed shoulder.

In breaking up the surface after being well laid dry, I should recommend the Farmer North of the *Tweed* to procure pattens for his horse, these cost about 11s. per set for one horse. I have never had a beast injured by wearing them, nor seen any that would be restive with pattens on their feet.

When moss land is very uneven with knolls or raised hillocks of small dimensions, then of course there will be hollow places, and in these circumstances I would plough up the raised ground, and indeed the whole surface, or as much of it as practicable, then have the moss trenched with the spade about 14 inches deep: in doing this, the men will readily cast the ploughed furrows into the bottom of the trench as they go on with the work, and in this way the entire surface may be made even as required. In this way I trenched 30 acres last winter, in the present winter I shall likewise trench the same extent.

Our next operation is to give the newly exposed surface a ploughing about five or six inches deep; we then harrow with the great harrow; these we prefer in order to break the very tough texture of our moss, which is so interwoven with vegetable fibre, that I have seen boys make foot-balls of some particular parts of it.

Our next labour is marling, this we do by portable railway. I apply about 200 cubic yards of marl, and 100 do. of sand to the statute acre; the land I estimate as useful as the marl, because we find it assists greatly to destroy the inert fibre, and also to constitute the entire mass more in character with the best natural soils. When the marl has been exposed sufficiently to pulverize, we drag the great harrow over and this operation compounds the mossy material with the marl and sand.

We manure with night-soil and ashes; of this, we use about 60 tons to the acre which costs 5s. per ton, when laid on the land. From this statement

our northern brother will have some idea of the expenses we incur.

Full three-fourths of the land trenched last winter I sowed with turnips, I shall make about 20l. per statute acre of this crop; the other part of my trenched bog I sowed with oats. Mr. Rothwell, of Warwick, estimated this crop at 80 bushels the acre. Mr. Robinson, one of the inspectors to the Liverpool Agricultural Society, judged them to be 70 bushels. We have thrashed out some, and find them to be about 75 bushels.

We commence marling in December next, and from that time to the end of February, I shall use not less than 10,000 tons. of marl and sand.

I should be glad to show the Farmer North of the Tweed, or any other enquiring cultivator, our easy system of preparing this heavy work, and beg to subscribe myself, Mr. Editor, yours respectfully,

A LANCASHIRE AGRICULTURIST, NEAR MANCHESTER.

P.S. I am only the superintendent and director of the moss-improvements here detailed, but I occupy a farm on my own account; this farm is a strong retentive soil, lying on a substrata of impervious clay.

Notwithstanding this unfavourable character, I will exhibit my farm against any other in the United Kingdom, which shall show the most marked improvement compared with all other lands in the same locality respectively within a distance of one or two miles.

In making this challenge, I disclaim anything which can be considered as a gambling transaction, neither is it to gratify any vain feeling; my object is a wish to see something in agriculture superior to any practical effect which has as yet come under my observation, therefore, if this offer is accepted, the losing party should only bear all expenses of inspection, and the enquiry to be made in April next.

ON MIXING SALT AND LIME.

SIR,—In an Editorial note, appended, in a recent number of your excellent Journal, to the queries of a correspondent respecting the use of salt, you remark—"Why does he not mix it with lime, and so use it?" You would very much oblige me, and I have no doubt many others of your readers, by stating in your paper at what period of the year this mixture should be made, how often it should be turned over before it is applied to the land, and whether the compost should be placed under cover, or remain in the open air? I fear to tax your good nature, or I would ask many other questions—such as, if it is suitable for all soils, and all kinds of crop, or not. But I refrain, and with many apologies for troubling you at all, I have the honour to be

A CONSTANT READER AND SUBSCRIBER

Nov. 11. TO YOUR PAPER.

[In reply to our correspondent's question, we have to remark that the salt and lime (one bushel of the former with two of the latter) must be mixed pretty intimately with each other, three months before they are used. The heap is best placed in a shed, or thatched over, as to preserve it from the ruin. The wet makes it run into cakes, and renders it more difficult to spread evenly over the land. We have seen it used with decided success for turnips, wheat, barley, or oats, chiefly on the light silicious lands of Essex and Hampshire. Mr. Bennett has been equally successful with it on the chalks of Wiltshire, and Sir Charles Burrell has used it with decidedly good results on the heavier soils of Sussex.—ED. M.L.E.]

MALT.

The Quantity of Malt consumed by the undermentioned Brewers of London and its vicinity, from 10th October, 1839, to 10th October, 1840.

	Qrs.		Qrs.
Barclay and Co.	115,561	Turner	728
Hanbury and Co.	98,124	Mantel	723
Whitbread and Co.	53,622	Addison	711
Reid and Co.	48,130	West	626
Meux and Co.	40,784	Collins	620
Combe and Co.	38,368	Hodd	594
Calvert and Co.	30,872	Martin and Parker	591
Hoare and Co.	30,310	Veray, J.	572
Taylor and Co.	27,300	Colyer	505
Elliott and Co.	25,255	Cooper	503
Thorne, Son, & Co.	20,846	Rudge, late Clarke	555
Goding and Co.	18,516	Garrett	481
Charrington & Co.	18,072	Clarke, S.	450
Gardner and Co.	15,558	Harris	447
Broadwood	14,631	Bye, W. and H.	433
Lamont & Stewart	13,475	Woodward	431
Mann	11,657	Abbot	407
Courage and Co.	11,632	Paris	405
Wood and Co.	7,194	Saunders	361
More	6,954	Lindsey	358
Hazard and Co.	6,729	West, J. W.	352
Hodgson & Abbott	5,704	Wicks	343
Manners and Co.	5,334	Griffiths	321
Harris, Thomas	5,152	Chapman	318
Richmond and Co.	4,964	Green	309
Tubb	4,478	Todman	279
Hale	4,443	Thompson	237
Farren and Till	4,425	Olley	206
Halford and Co.	3,585	Prosser	206
M'Leod, Bentley	3,403	Edwards, S.	205
Duggan & Gaskell	2,989	Powditch	204
Page	2,700	Prace	197
Laxton	2,658	Jackson	196
Lambert	2,607	Clark, H.	193
Johnson and Wyatt	2,425	Watkins	182
Staines and Fox	2,416	Mattam	179
Keen and Geard	2,354	Lasham	168
Patterson	2,333	Lloyd	155
Fleming and Co.	2,159	Brewer	150
Lane and Bowden	1,964	Turner, R.	146
Clarke, Charles	1,934	Goading	143
Griffiths	1,916	Bye, F.	143
Gurney	1,903	Jewett	143
Herrington and Co.	1,903	Pugh	141
Jones, T.	1,879	Thorpe	130
Veray, W. and G.	1,762	French	129
Cox, John	1,723	Hainstock	117
Draper and Co.	1,711	Eaton	115
Hill and Co.	1,677	Collins, W. L.	114
Masterman	1,672	Purcell	107
Fillmer and Co.	1,490	Birt	103
Brown, late Hicks	1,450	Husbands	102
Woods and Co.	1,442	Miller, Jos.	102
Satchell	1,308	Woodruff	92
Ufford and Older-shaw	1,201	Wood, D.	91
Honeyball	1,153	Combe	74
Easdale and Co.	1,116	Waigh	70
Dickenson	1,100	Steer	66
Holt	1,093	Godfrey	63
Turner, R.	1,077	Bigbee	64
Blogg	1,034	Chapman	55
Church	949	Batt	52
Jenner	929	Field	52
Hume	791	Shepherd	50
Plimmer	788	Meaton	47
M'Leod, J. & M.	782	Bradfield	45
Chadwick	775	Potter, E.	43
Lock	775	Hulls and Co.	40
Mann, Joel	773	Maynard, Jos.	39
Marvill	732	Potter, I. I.	38
		Smith	20

THE KINTBURY NAKED BARLEY, OR BARLEY WHEAT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

MY DEAR SIR.—The enclosed report by Mr. Cox, with regard to the Kintbury Barley, is every way worthy of the attention of your readers. Mr. Alderman informs me that he shall furnish Mr. George Gibbs with a sack of it, for exhibition on his seed stand, at the approaching Smithfield Show.—I am, my dear Sir, yours faithfully,

CUTHBERT W. JOHNSON.

Gray's Inn Square, Nov. 28.

TO C. ALDERMAN, Esq.

MY DEAR SIR,—A few days ago I wrote to our friend, and said I would bring with me the comparative estimate of your naked barley malt, but being at leisure I shall copy off and send it to you by post, so that you may peruse it before I shall have the pleasure of seeing you. You are not to scold me for saying that I think your barley, if well harvested, is capable of greater things; you will see what I have remarked upon it, but I believe a little more experience, especially with those who have been accustomed to make wheat malt, will cause it to be done better.—I remain, Sir, yours most truly,

JOHN COX.

Brewery, Bermondsey, Surrey, Nov. 6.

AUGUST, 1840.

MEMORANDUM OF A COMPARISON OF SAMPLES OF MALT.

No. 1. A sample of malt made from naked barley from Mr. C. Alderman, of Kintbury, Berks.

No. 2. A sample of very fine malt made from Chevalier barley from Essex.

In the first place, the weight of each sort of malt in an equally dry and in an unground state was ascertained, and found to be in the following proportions.

	lb.	lb.
No. 1. Weight per bushel	50	per qr. 400
No. 2. Weight per bushel	41½	per qr. 332

Then each sample was ground equally fine; they were kept free from any admixture, and then equal portions by weight were submitted to experiment, conducted exactly alike in each instance.

A portion of No. 1 in the proportion of 27lb. to 36 gallons of water was macerated, and infused for twelve hours in a good extractive heat, and produced a wort of 7.250lb. heavier per barrel than water, by Dring and Fage's saccharometer, which is at the rate of 107½lbs. per qr.; and by Dica's saccharometer containing 18.75lbs. of dry extract per brl. which is at the rate of 278lb. of dry extract per qr.

A portion of No. 2 in the proportion of 27lb. to 36 gallons of water was macerated and infused exactly as above, and produced a wort of 7.4819lbs. heavier per barrel than water, by Dring and Fage's saccharometer, which is at the rate of 92lb. per qr.; and by Dica's saccharometer containing 19.1lb. of dry extract per brl., which is at the rate of 235lb. of dry extract per qr.

There cannot be a doubt of the correctness of the operations, because as respects No. 2 the results agree with the produce obtained from many brewings of that malt within a fraction, indeed within a half per cent.

The following remarks are made with reference to the comparative produce of dry extract, as greater reliance can be placed on its accuracy (from repeated proofs of it) than on the weight per barrel above the weight of water.

According to the results shown by the foregoing experiments, if the produce (pound for pound) extractible from each sample should be equally valuable, then if No. 2 cost 73s. per qr. (the price paid for it), No. 1 would be worth 86s. 4d. per qr.; but the extracts were

not equally valuable, for that from No. 1 was inferior in flavour to that from No. 2, probably owing to inferior management before and in the process of malting.

It will be observed that (taking equal weights) the malt made from the naked barley is not so productive as that made from the Chevalier barley by nearly 2 per cent.; this appears extraordinary, because not being enveloped in an insoluble husk, it ought to be, and probably would be, more productive if equally well malted, and indeed in such case it may be expected that with equal weights, instead of being nearly 2 per cent. inferior it would be that much or to a greater extent superior; but then also, probably, the bushel would not weigh so much as 50lb. It will also be observed that (taking equal measures) the malt made from the naked barley exceeds in produce that made from chevalier barley by more than 18 per cent.; and this extent of produce would, probably, be increased if the naked barley had been uninjured and equally well malted.

But No. 1 sample of the malt made from the naked barley, was not well-flavoured nor of fine quality; several of the grains had not vegetated, and consequently (not being malt) could not be productive, and other grains had apparently been crushed, broken or bruised by the shoes of the thrasher, or by the shoes or shovels of the maltster; and those injured grains had contracted an ill flavour from mouldiness, which was communicated to the wort. It is probable that the extract would be equally good-flavoured, equally valuable, and the produce considerably greater if managed as well, and as perfectly malted as the sample No. 2, which was particularly excellent malt.

In the barn and in the malt-house, with common or chevalier barley (each grain of which is protected by a substantial husk), cloth or list shoes, without leather soles, should always be worn, whether in thrashing, cleaning, putting up, or in all the operations of the malt-house; and with naked barley (which has no husk to protect its germ) it becomes doubly necessary to use not only the same but every other necessary precaution, to prevent injury, and to use farther delicacy in the operations of malting.

JOHN COX.

Bermondsey, Surrey.

The Kintbury Naked Barley is thus described by Mr. Alderman:—

1. It contains more flour than any other grain, rice only excepted.
2. It weighs more than 60lbs. per bushel.
3. The flour is whiter and sweeter than common barley flour.
4. The flour absorbs more water than other flour, consequently it produces more weight of bread.
5. Bread made from any barley flour is better made into thick cakes; and if from a fourth to an eighth of an ounce of carbonate of soda is dissolved in the yeast, it improves all bread, and takes the bitter taste away.
6. By plain boiling it is good food for children.
7. The malt made from it increases in measure more than from common barley.
8. The malt will make in seven days less than common barley.
9. It can be made one month earlier and one month later than from common barley.
10. It weighs considerably more than the malt from common barley.
11. The beer made from this malt is superior.
12. Three bushels will seed the land as well as four of other barley.
13. It should be sown in March or April.
14. It ripens in 80 or 90 days only.
15. If sown without grass it can be harvested in two or three days.
16. If sown early it will be harvested in time for a following good crop of turnips.
17. It only requires the same cultivation as other barley.
18. The straw is much superior for fodder.
19. It very seldom lodges, and is not subject to disease.
20. Each acre of this barley produces about one-third more food for human beings or animals.

VETERINARY SCHOOLS AND BREEDING OF HORSES IN FRANCE.

Attention has been particularly directed of late years in France to the improvement of the breeds of horses, of which some are possessed of properties useful and peculiar to the country, the great desideratum to be supplied being the acquisition and naturalization of horses of pure race and greater speed. When any object is desirable and expedient in a national point of view, the Government there is not slow in its direct intromission, and accordingly with that faculty for systematising in which the people are so ready and expert, a grand plan was speedily traced and organized for forming some extensive establishments of *haras*, or convenient open grounds and buildings for the reception, pasture, and superintendence of the best breed, in various districts of the country, for which indeed models were to be found in Hungary and the Crimea. At yearly exhibitions of horses premiums are besides awarded to all such breeders or farmers as shall produce horses of the most approved qualities, and to encourage individuals in improving their stock the choicest horses are supplied from the *haras* to the proprietors of brood mares for a trifling consideration. A permanent commission for the examination and registration of horses of pure blood is constituted, at the head of which are the Duc Decazes, Count de Flahaut, with seven other distinguished persons, under whom are different services conducted by inspector-generals, directors of the *haras*, and directors of the depots of entire horses, &c. The most useful institutions however springing out of and attached to the system of these *haras*, are doubtless those of the "royal veterinary schools" and "royal *vergeries*," the latter a kind of horse folds as it may be said. The advancement of veterinary science by training scientifically to the practice persons of superior general attainments, and thus elevating to the dignity of a profession an art hitherto abandoned to a class of men of such low degree, as to be without pretensions to more than the commonest rudiments of education, when any at all, has long been felt in this country to be a consummation earnestly to be wished, but of which the means to the end could not be exactly comprehended without the intervention of the state, which was not a very probable event. In France however the object is at once attained, or in progress, by these veterinary schools, of the principles on which founded and to be governed the following outline may perhaps be of some interest generally. There are three of these schools, one at Alfort near Paris, another at Lyons, and a third at Toulouse. Any one is admissible into these schools from 16 to 25 years of age; some at the charge of parents, others entitled to a whole or a half *bourse*, which would seem something like the exhibitions for the universities attached to various grammar-school foundations here. The charge for board and education is 360 francs per annum, or about 14l. 8s., payable quarterly and in advance; all the pupils are subject to the same *regime*, clothed in the same manner and receive the same instruction. The time of entrance is fixed for the first Monday in October of each year; no one can be admitted without the authorization of the Minister of Agriculture and Commerce, the candidates authorised to present themselves do not definitively take rank among the pupils until on examination before a competent jury they are proved to possess the requisite conditions, which are to be able to read and write correctly, and to forge a horse or ox shoe, *en deux chaudes*, a technical expression which seems to imply the making the shoe in two heats, or whilst the iron is twice heated in the fire for the operation. Every request for authorisation to enter into the veterinary schools must be addressed to the Minister of Agriculture before the 1st of September at latest, with a copy of the register of birth of the petitioner, a certificate of good conduct, and an attestation that he has been vaccinated, or has had the small pox. The Government defrays the expense of one hundred and

twenty *bourses*, one for each department, at the nomination of the Minister of Agriculture and Commerce upon the presentation of the prefect, and thirty-four on the direct nomination of the Minister. These *bourses* are all divided into half *bourses*. In order to obtain a *demi-bourse* a pupil must have studied six months at least as pupil paying *pension*, and that he shall have distinguished himself by the regularity of his conduct and success in his studies. The pupil entitled to a *demi-bourse* may obtain a second, but always as a reward of good conduct and successful progress. The Minister of War supports at the veterinary school of Alfort forty military pupils for the service of the cavalry. The pupils who, after four years' study, are adjudged capable of exercising the veterinary art, receive a diploma as veterinary surgeon, the cost of which is fixed at 100 francs. The veterinary schools have hospitals attached to them, for the reception and treatment of diseased animals. The owners of these horses have only to pay the alimentary charge, of which the price is fixed yearly.

It is clear that an institution so well conceived, conducted on rules and principles so well ordered, cannot fail to answer the important and economical purposes of the founders, by producing a class of educated and skilful practitioners capable of rendering great service both to the state and individuals.

ON DISEASES IN SHEEP.

SIR,—Having consulted some experienced sheepmasters, to whom the following cases appear entirely new, will you allow of this insertion in your paper, hoping, through that means, the diseases and their remedies might be known, and thereby become of general benefit.

Ten days ago, the shepherd found in a fold of last year's wether lambs, one extended and apparently dead, but on taking it up, it was paralyzed, the eye clear and lively, the nose moist, no fever, pulse regular, tongue good, in fact, no indications of disease or pain, excepting an incapacity of moving the legs, or standing when put up. The sheep was bled; soon after he walked about for a few minutes, then relaxed, when he was housed, and some Epsom salts and ginger given; he eats sliced turnips, and the greens, when put into the mouth, but cares not to help himself to any quantity. In two or three instances, almost as quickly as the attack came on, it has gone off; the sheep gets up, walks about, and one day seemed so well climbing up the hurdle for the purpose of seeing other sheep in the adjoining field, that the shepherd thought he would let him into the meadow, but had not gone many paces before he again fell. One ounce of sulphur has been given to keep the body sufficiently open, since then another dose of Epsom salts and ginger. During the illness there has been a grinding of the teeth, the head has inclined to the left, and there has been a disposition to lie on that side in preference to the other; without appearing worse in symptoms he has not recovered the use of his legs for these two past days. I have examined W. Youatt's treatise on sheep, and find no disease so analogous as palsy, but palsy usually attacks young lambs, and at weaning time, not as now, good sized lambs nearly twelve months old; then again, palsy seems constant, not intermittent in the attacks.

The second case is—the sheep staggers, turns round two or three times quickly, then falls, after one or two minutes again rises and follows the flock. This has been repeated two or three times in the day by the same sheep, and is so like Youatt's description of epilepsy that it would be passed as

such, but for this difference, it has been accompanied with frothing at the mouth and sickening for some days after the attack. These sheep have recovered soonest when nothing has been given them.

Will sheep eat the young shoots of the common dock at this season of the year, and will that produce the above injurious effects?

The third case is analogous to atrophy in the human race. There has not been observed any fever or injurious symptoms, but from gradually wasting, thinking there must be some latent mischief, the sheep has been bled and physicked as if for fever; he has been kept well, eats, looks lively about the eye, but is still weak and wastes.

If there have been though unobserved—fever, it can be explained; otherwise, there does not appear in Youatt a disease among sheep to which it can be compared.

The general treatment of the flock is, that they are allowed to feed on good meadows during the day, and at night in rough weather, they are folded, having hay given them at night, and again in the morning before being let out, that the sheep might not eat too much moist food, particularly when the white frosts are on the ground.

Should any of your readers be able to give information on this subject, it will oblige,

Sir, Yours, very respectfully,

Nov. 19, 1840.

S. H.

ON THE PRESENT EPIZOOTIC AMONG CATTLE, SHEEP, &c.

TO THE EDITOR OF THE DONCASTER GAZETTE.

SIR,—From the epidemic raging among cattle, this place has not been exempt. Although it has not assumed so serious a character here as at some other places, perhaps the following remarks may possess sufficient interest to render them acceptable to many of your readers.

From the present epizootic among cattle, sheep, and swine of every denomination, neither age nor sex affords the least protection. I have witnessed it in its various gradations, from the cow of ten years old to the calf of two days only. As yet, I have not seen it in either the horse or dog, neither do I think the former animal susceptible of the disease.

I believe we have not yet arrived at a knowledge of the real cause of this malady, although many suggestions have been advanced both by theoretical and practical men. The disease has been attributed by some to cattle taking the *ranunculus*, or buttercup; but the majority of cases, and the most obstinate that have fallen under my notice, occurred before this flower made its appearance.

The most likely cause seems to me to be that of the atmosphere being charged with some poisonous effluvia exuding from the earth, in consequence of the dry weather setting in so suddenly after the extreme wet; bad provender, such as hay, tares, &c. In many of the obstinate cases that I have witnessed, the patients have been living in this way; and we are practically acquainted with the fact, as it regards the human subject and our more general patient the horse, that there are many diseases to which both are liable, such as the itch, gaol and sheep fever, glanders, farcy, and mange, all of which are generated within themselves, and yet are highly contagious. Such may be the case with this disease.

Like other epidemic or epizootic diseases, those animals which are first attacked are visited with the greatest severity. In selecting those localities most favourably situated for exciting its malignant influence,

and those places where the materials most fitting for its propagation are to be found—namely, where the greatest number of animals are kept together—where the air is least pure, the epizootic appears to be nothing more or less than an attack, from some unknown or at least undetermined agent, upon the whole of the mucous membranes, commencing at the usual lining, and continuing its course through the trachea, &c. Whether the digestive organs are primarily or secondarily affected, is not yet decided; but I am much inclined to believe the former, and in this supposition my successful treatment adopted somewhat bears me out. Counter irritants are recommended by some of the profession; but I confess that I cannot see the utility of them in this disease, as, before they will act effectually, we obtain all we desire by other and more certain means.

The disease is evidently of a contagious character, and although this is disputed by some, I think sufficient evidence may be easily collected in any locality where it has prevailed to place the question beyond dispute. In the south, where the disease existed for so long a period, the farmers regarded it not only as of the most contagious and infectious nature, but as of a character too hopeless to admit of cure; and they had therefore resorted to the qualifying remedy of inoculation, and applied the saliva of the diseased cows to the mouths of the rest of the herd, thereby communicating the disease to them in a milder form, and preventing them taking it with its natural and severe consequences.

The disease is ushered in by a cold fit, manifested by a slight erection of the coat, extremities cold, diminution of appetite. This is quickly followed by what may be termed the hot-fit; the coat resumes its natural appearance, the roots of the horns are unusually warm, the mouth presents a slight increase of saliva, nose quite dry, the bowels in various states; pulse generally about 70 beats in the minute, feet tender and the beast occasionally shelling them, tongue swollen, and sometimes the angles of the lips are very tender. From six to twelve hours after the commencement of the cold fit, an effusion of serum takes place under the cuticle where it is most dense and void of hair: it raises the cuticle in the form of extensive vesicles, namely, on the dorsum and around the point of the tongue, under the upper lip, the extremity of the nose, the connecting portions between the hoofs and around the top of them, and often a considerable portion of the heel of the horny sole, also on the papillæ or teats of those cows that are giving milk at the time of the attack. From this to the third or fourth day constitutes the sloughing of the raised cuticle, during which time the animal is prevented feeding to any extent, from the extreme soreness of the mouth, although it makes frequent attempts to do so. By the end of the third day, the animal has a most wretched appearance, looking exceedingly empty, the coat partially erected, head drooping with a constant flow of saliva from the mouth, the eyes sunken; generally lying down, and manifestly from two causes, debility and tenderness of the feet.

In its treatment, it should be borne in mind that it is of a specific nature, dependent on a peculiar diathesis, or state of body arising from epidemic influence; being subjected to the action of a vitiated atmosphere, which giving rise to febrile commotion, a state of excitement is induced, which soon conquers the opposing force of nature, depresses organic nervous power, and quickly renders life extinct. Therefore, although the disease may be based on inflammation, attended with a quick, full, and bounding pulse, yet venesection must not be carried to excess. There must be no bleeding to "approach syncope;" none to produce a "falter" of the heart's action, or fatal collapse may ensue, and rapidly sink the powers of nature; but moderate bleeding, during the state of excitement, I have often found to abate the disease, also to lessen the degree of subsequent debility and duration of it. All concur, I believe, in the propriety of unloading the bowels, by means of some cathartics, as speedily as possible, which are often found loaded with a quantity of black, highly offensive feces, frequently streaked with blood. The after-treatment must be left to the discretion and judg-

ment of the medical attendant; for no rule can be laid down from which no deviation in treatment is called for. It is mere quackery to suppose or assert so. I will here close my remarks, by stating that the disease has so far lost its virulent character that many that are now attacked with it require little or no treatment; and instead of its spreading rapidly through the whole of the cattle in a farm in the short space of a few days, it now selects individuals, leaving the great bulk untouched.

J. B. LOAN, Veterinary Surgeon.
Priory Place, Doncaster, Nov. 15, 1840.

ON DRAINING AND SUBSOIL PLOUGHING.

TO MR. ELLIS.

Collingham, Nov. 18, 1840.

SIR,—I regret much that your letter should have remained so long unnoticed by me, but the reason is this: I have been from home for some time, and have not until this very day seen the "*Mark Lane Express*" of the 9th. Hoping that this letter may find admission into the next number, I shall be as brief as possible, taking the subjects on which you touch in consecutive order as they stand.

As I have before stated in the *Mark Lane Express*, I consider the subsoil plough of immense importance in the improvement of clay land, and there are few soils on which it may not be "advantageously worked"; but whether or not this opinion will hold good as to the principality equally with other parts of the United Kingdom which I have seen, I cannot say, but there can be little doubt about it.

As to the "soils best adapted to the operation of the subsoil plough," I am not able to meet the question exactly in the way you may have been led to expect; nor do I think that the experience of any one man will enable him to answer it. The subsoil operation is comparatively a new discovery, and I, at least, am not aware that it has been well enough done, on the different varieties of soil, to warrant a conclusion as to which it is "best adapted to."

The first and principal object of the improver of cold, wet, strong, clay land, is to get off the water: this will be best done by thorough-draining, and the use of the largest Scotch subsoil plough. When applied to land several degrees lighter than the above, the smaller iron plough will be better, taking much less draught; and for land still lighter, where the object is more to cool the land in summer, than to facilitate the exit of the water, the Rackheath plough is perhaps the most suitable.

You speak of "a Mr. Smith," quoting my friend Mr. Wright. There is but one Mr. Smith in Scotland, every one will say who knows the inventor of the subsoil plough.

You may procure either of the ploughs of Messrs. Drummond, of Stirling; the largest for 8*l.*, and the smaller one for 4*l.* 4*s.*, first cost. The one used by Mr. Wright, is Mr. Murray's, and may be drawn by two powerful horses. Mr. Wright has, I believe, the merit of having first discovered the importance of the agency of the subsoil plough, in destroying the wire worm, and I do hope, that many others, now that their attention has been drawn to this particular point, will give the plough a trial. You are quite right as to Mr. Smith's plough. It will often be found hard work for six horses; but, of course, much will depend on the nature of the subsoil,

and on its state as to dryness. Four horses will sometimes be sufficient, where I should yet prefer the largest plough.

Finally, for your government, and to assist any other gentleman who may have a desire to use the subsoil plough; if the soil be a strong clay, and the subsoil stiff and impervious, the land should first be well-drained; the drains being so put, if possible, that the subsoil plough shall cross them at nearly a right-angle—and then the party must embrace the most favourable season for using the largest plough, which will be, when it is neither wet, nor dry. With the other kinds of soil referred to,—provided always that the land be well-drained, if it needs it,—the improver must proceed according to circumstances, nothing doubting, but he will find an ample return for all his labour, whatever it may be, and however discouraging his first attempts may be, arising from the ignorance, stupidity, and awkwardness of the horses, and men, which he will find pretty equally balanced.

Should these hasty remarks be of any use to you, it will give me great pleasure. In conclusion, I beg to inform you, that it is my intention in a month or two, to publish a small work on the Management of Woods and Plantations, and on the best means of improving clay land, which will include all I have to say on the subject of the subsoil plough.

I am, Yours truly,
J. WEST.

ON PLANTING POTATOES.

TO THE EDITOR OF THE YORK HERALD.

In proportion to the success or failure of the wheat crop, is the importance of that of potatoes: the wheat on being secured in this district, is found very far short of an average, although of good quality, we, therefore, look to that of potatoes, as being in some measure a substitute; but alas! that crop also is a failure. This deficiency may chiefly be attributed to the cold ungenial season. Another and one of the chief causes I believe to be cutting the sets too small for planting, for although a small set may do well in a favourable season, it requires more heart to support it, and more stamina to work upon, in seasons so unfavourable for vegetation as the last. It is the duty of the farmer to counteract, by attentive management, the casualties of the seasons; therefore, if you think the following suggestions worthy a place in the *York Herald*, I hope they will be found interesting to your agricultural readers at this season.

At the time of planting my potatoes last spring, I saw some remarks of Sir James Graham's, in the third number of the "*Transactions of the Royal English Agricultural Society*," on the advantages of planting whole tubers, at long intervals instead of sliced tubers, at short ones; following these suggestions, they being my own opinion previously, I tried two rows in the middle of a field of potatoes, planting whole tubers about thirty inches apart in the rows, the other part of the field being sliced and planted at about ten inches. I have this day lifted the potatoes, and find the result to be an increase in bulk of twenty per cent. on the whole tubers over the sliced ones; for on measuring the two rows planted whole, they contained ten bushels, whilst two sliced ones adjoining only had eight. The haul of those planted whole was also much more luxuriant during the summer, and easily distin-

guished from the other as soon as you entered the field. The land is a fine pliable loam, favourable to potatoes, and I should consider the benefit of planting whole sets much greater, where the land is clayey, or otherwise unfavourable to their growth. As to garden ground or new soils, apt to produce too much top, the case might be different. The following is also an instance of the advantage of good sized sets. I allowed a labourer of mine to plant a bushel for his own use, in the field abovementioned, the seed being bought of me, and the same I was planting; he being anxious to plant as much land as possible, the seed was cut into very small slices, the consequence was a failure in the crop of about ten per cent., compared with mine in the adjoining stitches, not out so small. These experiments fully bear out Sir James Graham's remarks, and are therefore worthy the further attention of agriculturists in meeting those precarious seasons, always remembering to try experiments with due caution, and on a small scale, as the difference in soil, climate and other circumstances, make material differences in results.

I am, Mr. Editor, yours respectfully,
Hallgarth Farm, Kildale, R. C. WEATHERELL.
Oct. 29, 1840.

COLOURING CHEESE.

To the Secretary of the South Cheshire Agricultural Society.

SIR,—When I mentioned my intention at the late agricultural meeting at Northwich, of giving a premium for the best "Treatise upon the Use of Colouring in Cheshire cheese," I did not wish that it should remain a mere barren offer, but I sincerely hoped that it would be claimed and adjudged at our meeting in 1841. The subject may to some appear trifling, but I am mistaken if the greater part of the farmers who were present at the dinner, were not fully alive to its importance to our farming interests.

Dr. Holland, in his "View of the Agriculture of Cheshire," published in 1808, asserts that upwards of 10,000*l.* went annually out of the county for the purchase of the drug annatto, which is the principal material employed in the colouring of cheese in this county, and I see no reason for supposing that that amount is less in the present day. Now even this sum would be worth saving, and would be better in the farmers' pocket than to be uselessly thrown away. But if it could be shown, that it is not only thrown away, but that it is the very means by which our produce, of which we had formerly so much reason to be proud, is deteriorated and disgraced in the estimation of the public, I think it is high time that a society professing to watch over the agriculture of the county, and to guard the interests of the farmer, should bestir itself and take some steps to persuade the cheese-eaters of the metropolis and others, how absurd it is to prefer this worse than useless embellishment to the natural beauty of a real well-made Cheshire cheese. Everybody has heard the common complaint that the cheese of the present day is not so good as it was formerly. This is not mere fancy, and in some measure may be accounted for by the injudicious use now made of the annatto. There are farmers who remember the day when no colouring whatever was used in the dairy. Is it then necessary to look further in order to discover the real cause in the falling-off in the quality of our staple commodity? My friend, Dr. Latham, of Bradwell-hall, from whom I received the first hint on the subject, and whose authority I should prefer to most others—for it would be difficult to find any person who unites so much practical knowledge with such scientific attainments—assured me that he considered the colouring matter used in our cheese as little better than rank poison. It may perhaps be harmless for a considerable

period, but the moment the cheese acquires a certain age, when it begins to fret, as the farmers call it, then the lactic acid combines with the vegetable matter of the annatto, and a strong offensive compound is the result. This takes the place of the formation of the blue mould, which is a symptom of its natural decay, and used to characterise a good old Cheshire cheese.

I propose then that you and the gentlemen of the committee should, by such means as you may think fit, make known the object proposed by this trifling premium, or rather I should say this token of approbation from the Society (for it will but poorly pay the labour and the research required for such an investigation, and whoever undertakes it must have his reward rather in the consciousness of the good that may be effected to the farming interest of the county by his labours than in the value of the premium itself), and endeavour to find out some person who would undertake to enlighten the public mind by writing a treatise upon the use and abuse of annatto in cheese-making. It might perhaps be desirable that whoever undertakes this task should previously be informed of what would be required of him in order to fulfil the object of the society. I therefore take the liberty of suggesting the principal points to be arrived at in this inquiry:—

1st. It will be essential to examine it botanically. Miller, in his *Gardeners' Dictionary*, says the annatto tree or shrub is found in several of our West Indian Islands, and in South America. The colouring matter is extracted from the bulb which covers the seeds. It is used by the natives medicinally,—a good reason for supposing that its qualities cannot be quite harmless.

2ndly. The writer should follow it in its commercial character. He should inform us of the manner of preparing it for sale, of the quantity imported into this country, and its use in manufactures. But, above all, he should endeavour to trace the various colouring substances, deleterious or otherwise, which are sold as a substitute for the real annatto.

3rdly. He should endeavour to ascertain by experiment and by the most searching enquiries, as well among cheese buyers as cheese makers, the effect which the annatto produces upon the cheese at its different stages of maturity and decay.

After all that can be said on the subject, cheese, like every other article of commerce, is only good for what it will fetch in the market. If the London factor and the London consumer prefer a painted beauty to a natural complexion, we cannot help it; but there is no need for us to encourage them in their foolish fancy to our loss. As an agricultural society, we are bound to show them the meretricious character of the object of their preference. No Cheshire gentleman or Cheshire farmer will endure a coloured cheese at his table; and it would be well, if we could, at the meeting of the great English Agricultural Society, which is to take place at Liverpool next year, try to disabuse the public on this head, by sample as well as by theory, and show that "good cheese requires no colouring." I have the honour to be, your obedient servant,

Delamerehouse. Nov. 9, 1840.

G. WILBRAHAM.

THE TURNWRIST PLOUGH.

SIR,—As I quite concur in opinion, with your correspondent, on the plough, (whose letter is in the "Farmer's Magazine" for July last) as to the great merit of the Kent or Turnwrisk Plough, I shall be obliged to him to inform me, where I can procure one, to be made upon the best and most improved principle. I have seen them work in Kent and in Sussex, and for hilly land, I have always considered them far superior to any other plough.

I am, Sir, your most obedient servant,

JOHN BARKER.

Higham Grange, near Hinckley, Leicestershire,
Sept. 18, 1840.

ANGLO-RUSSIAN TRADE.

TO THE MANUFACTURERS OF SOAP AND CANDLES
THROUGHOUT THE UNITED KINGDOM.

GENTLEMEN,—There are few persons, and I allude particularly to those engaged in trade, to whom it is not beneficial to revert occasionally from the excitement of every day's change of action, to those first principles by which they should be governed and directed.

Man is too apt to be acted upon by circumstance and impulse, and so powerful do these become, that step by step they outweigh his better reason, and ultimately supplant, or at the best warp, the matured opinions, which frequently a whole life's experience has endeavoured to consolidate.

This is eminently the case with commerce.

The laws which regulate the trading among nations—the vast but silent changes which civilisation is making over the earth, opening out every day new channels to supply the demand which it creates—all these essential points are overlooked, and in the title-tattle of a coffee-house, false reasoning, like scum, is uppermost, until the victim awakes to discover how completely by its aid the ends of designing men have been accomplished.

I venture to call your attention to this, because much loss has occurred to your interests from it, and I believe you will from experience agree with me, that such a delusion may easily gain on any one.

If therefore we examine, by the test of fair and impartial analysis, the state of our trade with Russia, we shall find that while by dexterous management the people of England have been heavily taxed for Russian produce, time has brought changes in the condition of both countries, to which little or no attention has been paid.

Agriculture has, within the last ten years, attracted the attention of men of talent in this country. The race of common and uneducated farmers is giving way to a new class, who bring science to the aid of practical knowledge, and a glance at the agricultural records of the past year, will show how much new light has been thrown on the subject of husbandry, and, as more nearly concerns you, the breeding and fattening of stock.

With the vast increase in the population, and consequent increased demand for food, the home produce of *fat has yet progressed beyond it*; for, with the non-consumption of Russian tallow, from whence could come the masses which have supplied the country during the last five months, if not from the enormous stock which improved husbandry and farming is creating in Great Britain?

Russia, too, has in the same time considerably increased her produce, and each successive season adds facilities to her doing so, yet the farmers and dealers there have not been idle, but with quickness availed themselves of the delusion existing as to our home supply, by extorting from the fears and ignorance of the British consumer prices, which, most assuredly, his better reason would never have conceded.

But that day is, I trust, gone by, for the trade are now aware of the powers they possess; they have experienced that from the resources of their own powerful country, unequalled as it is for wealth and the means of amassing it, they can supply themselves; and with the experience of the last ten days before their eyes, they will for the future read Russian monopolists the same lesson which Mr. Biddle learned from the people of Lancashire, when he deemed himself able to over-reach them.

It is strange that this attempt on the tallow market should have followed so closely on the famous Sicilian brimstone monopoly. It is a fit companion in the defeat which *has destroyed both*.

As if retribution should ever attend upon injustice, the people of Sicily are for ever debarred from obtaining high prices for their sulphur. The extortion attempted by them called into life and activity all the chemical knowledge in the kingdom, and although in the first instance a variety of opinions existed as to the value of the substitute, yet, by the universal adoption of British sulphur ores, called "pyrites," and the increased facility

in working them, *there is no doubt remaining* that the monopoly is ended, and that brimstone will fall yet much below its present reduced value.

And so, gentlemen, it will be with your trade. There are substitutes to be found for tallow as well as for sulphur, and they are too numerous and too available for monopoly to hurt you, if you remain true to yourselves.

The stock of tallow equals now the quantity I asserted would arrive by January, and the belief is common that France, though ordering additional forces to South America, is, in reality, bent upon raising the Buenos Ayres blockade, and the tallow accumulated there (10,000 tons) will shortly arrive.

But, without any such accession to our present stock, which would spread confusion indeed among holders at high prices, we shall have more than will be wanted until the commencement of next season. The quantities of both home and foreign tallow daily increasing, have had the effect I predicted, and prices have declined more than 6*l.* per ton within the last ten days. This is to be ascribed mainly to the firmness you have manifested; and gentlemen, I now ask you, putting to one side the trifles which in a question of this magnitude serve but to embarrass, whether I exaggerated to you your powers over the Russian trade?

To such of you as are not engaged in soap-making, and consequently are unable to use the substitutes for tallow, I would nevertheless, recommend a strict attention to the state of the palm-oil trade. It is, I am happy to say, prospering to an extent which, but a few short years back, it would have been extravagant to have even imagined—it is employing our ships and our sailors, and doing silently and slowly, but surely, the work of emancipation in Africa.

Not long ago 2,000 or 3,000 tons of palm-oil was considered a heavy importation for one year; and now, from January, 1840, to January, 1841, there will have been brought to this country, upwards of 15,000 tons, equal in quantity to 40,000 casks of tallow; and at this moment I am informed that there are on the coast of Africa no less than 22,000 tons of British shipping loading palm oil for England. In short, the time is fast approaching when the soils of England and of her colonies will make her people independent of the rest of the world, as well in respect of the necessities as of the luxuries of life; and, with the consummation of this prospect ends the career of the foreign monopolists in our land.

Your course is now clear before you. You have by prudence overcome your opponent. There came a pressure upon them; and, failing of your support among the various obstacles which assailed them, they had no choice but to submit.

I trust, gentlemen, that you will preserve the same reasoning, the same discretion, for a similar case, if ever such should be attempted, and bidding you a most satisfactory farewell, I remain, yours, respectfully.

A MANUFACTURER.

LABOUR.—In the year 1352, in the reign of Edward the Third, the amount of wages paid to hay-makers we find to have been one penny per day. A mower of meadows received fivepence per day, or at the rate of fivepence per acre. Reapers of corn, in the first week of August twopence, in the second threepence per day; and so on to the end of the harvest, without meat, drink, or any other allowance, they finding their own implements of husbandry. For threshing a quarter of wheat or rye, twopence halfpenny; a quarter of barley, beans, peas, and oats, one penny and a farthing. A master carpenter received threepence per day, other carpenters twopence per day; a master mason fourpence per day, and other masons threepence per day; tilers threepence, their underlings three halfpence. Plasterers were paid in the like sum, without meat or drink, and this from Easter to Michaelmas, and a fraction less during the other months of the year, when the days were shorter.

ON RAGS.

Rags (hracod, Sax., torn, ragged; rager, raga, Dan., to rake, to shave; ragg, rough hair, Swed. *ragor*, a torn garment; *payas*, a tear, fissure, or rupture.—Gr.), are a very useful manure on dry chalks and gravel, as they attract and retain much moisture for the benefit of the plants. They are best cut into small pieces of 2 inches square, as they remain long undecomposed under ground, and are usually applied at the rate of half a ton to an acre, at the cost of 5s. to 8s. per cwt.; when measured by the bushel, 20 to 30 are used on an acre, and cost 4d. to 6d. sown by hand. The usual price is 7s. 6d. per cwt., and 6d. for chopping. They are much used for manuring hops, on account of retaining moisture; but in dry seasons they create mould and do harm, and the operation is slow; and the most useful application seems to be ploughing them into the ground with one furrow for crop, so as not to be pulled out by the harrows, or used as a top-dressing on clovers. An excellent preparation has been effected by steeping them, chopped small, in privies or receiving tanks, and then applied to any crops. When chopped small, and used in an unprepared state in drills for turnips, beet, and potatoes, they failed by 40 per cent. against farm-yard dung; the barley and hay crop showed a difference for a time after bairding, as often happens with such manures, but none at the time of reaping. It was curious to observe the dark green colours of the artificial grasses during winter and spring, till the growth of the plants commenced, when the difference speedily vanished. In applying such manures, no rule for quantity can be adopted; a sufficient supply is seldom available, and the greater quantity will imply a greater produce and a greater expense; and the comparative merits of each can only be ascertained by allowing an equal expense per acre, or a greater produce must be realized from the greater expense, which must exceed the difference in order to induce the application.

It is a curious fact, that linen rags yield more than half their weight of sugar by the implemency of one of the cheapest and most abundant acids. An application of concentrated sulphuric acid converts the rags into a mucilaginous mass, entirely soluble in water, scarcely coloured, homogeneous, pungent, and very tenacious. The acid is then saturated with chalk, in order to disengage it from the gummy substance, and a solid sulphate of lime is formed, which is removed by pressing the mixture through a linen cloth. The liquor is evaporated and freed from chalk, and assumes the appearance of insoluble gum. But the diluted solution of the rags by the acid may be boiled, and instead of a gum, sugar, in form of a syrup, is produced. The free acid is then neutralized, the liquor is filtered and evaporated until the syrup is thick. Crystals then appear, and afterwards solid sugar; and by redissolving and re-crystallizing, a pure and snowy whiteness may be obtained. Rags contain "lignin," or woody fibre, which contains precisely the same elements as occur in sugar, and the only use of the acid is to effect that change in the proportions and mode of combination of the elements which will produce sugar. "Lignin" contains equal weights of water and carbon, and possesses nearly the same composition in all plants, and forms an important item in all vegetable products.

The elements of many organic substances differ little, but the peculiar mode of combination has a

great effect on quantity and quality, and similar ingredients in like proportions do not produce similar results. But this truth does not account for two bodies, so nearly allied in composition, showing so very different qualities—for one substance may be converted into another, but that product cannot be again converted into the original substance. Vinegar may be got from sugar, but not sugar from vinegar: sugar is a combination of charcoal and water, but we cannot make sugar from these bodies, because we cannot command the circumstances under which the materials come in contact in the sugar cane. Some inorganic bodies may be composed, as water, by mixing the elements of composition, oxygen and hydrogen; but organic bodies are subjected only to one method. Gelatine or animal jelly has the same elements as carbonate of ammonia; and the salt can be produced from gelatine, but not gelatine from the salt. Human power is unable to produce organic substances from inorganic materials; and in trying to imitate the beautiful productions of nature, which is the highest excellence of art, the chemist can only watch and slowly comprehend the wonderful operation of nature's modes, but he cannot do the work; he can undo it and examine the materials, but remains in ignorance of the power and means by which the vast variety of organic substances is produced. Recombination of the elements eludes our search.

J. D.

NEW REAPING SCYTHE.

FROM THE DURHAM ADVERTISER OF DATE 23rd OCT.

The new reaping scythe invented by Messrs. Drummond and Sons of Stirling, has this harvest been introduced upon his land, by Thomas Harrison, Esq., of Stubb House, in this county, and used with the most complete success. Mr. H. has had 58 acres of oats, 9 acres of beans, and 51 acres of wheat, mown this season by the new scythe, in the most perfect manner. The mowers were Robert and John Wappat. Several of the neighbouring agriculturists (who may fairly be ranked amongst the very best farmers in England) have visited Mr. Harrison's estate, and have declared the mowing to exceed their utmost expectations, and almost unanimously expressed their intention of adopting these scythes next season.

DIBBLING WHEAT.—One of the greatest objections to the adoption of dibbling wheat is the difficulty of getting the seed dropped into the holes with regularity, children being generally employed, and independent of time being required to teach them, there will always be a degree of carelessness attendant upon youth. We are now enabled to state that a hand-dibble has been invented, which will drop the grain with certainty and regularity two, three, or four grains, as required, thus reducing the distribution to a certainty, and effectually insuring the saving of seed. As in many other cases, the inventor of this dibble has not been engaged in agricultural pursuits. This invention will remove much of the objection to dibbling hitherto entertained, and will, we trust, be the means of increasing the employment of manual labour in those districts where the population is superabundant.

ON PREPARING NIGHT-SOIL.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—I observed a few days ago in one of your late periodicals, an enquiry, by a correspondent, for the best method of preparing night-soil for manure. He said "he had mixed it with lime, and a very strong smell of ammonia was evolved, whereby he feared the efficacy of the manure might be impaired." These conclusions are perfectly correct; its efficacy as organic manure would be destroyed by the use of lime.

When an organic body containing nitrogen undergoes putrefaction, and moisture present, the nitrogen unites with the hydrogen of the water and forms ammonia; the oxygen, the other element of water, unites with the carbon of the putrifying body, and forms carbonic acid; both these transformations, in their nascent state, combine and form carbonate of ammonia, a volatile salt, which is always evaporating with water, as long as the decomposition continues. Such invariably takes place in nitrogenous bodies.

When lime is added to a body holding carbonate of ammonia in solution, as in night-soil, the ammoniacal salt is decomposed; the lime robs it of its carbonic acid and caustic ammonia, a still more volatile compound, flies off in gas: thus we have got rid of all the nitrogen the organic compound contained.

Organic manure, without nitrogen, is of very little value. It pervades every part of the vegetable structure, and no plant will attain maturity, even in the richest mould, without its presence. The relative value of manure may be known by the relative quantity of nitrogen it contains. There does not appear to be any manure so rich in nitrogen as human excrement (except bone manure, which contains upwards of 30 per cent. of gelatine in its interstices); so much so, that according to the analyses of Macaire and Marcet, 100 parts of human urine are equal to 1300 parts of fresh dung of the horse, 600 parts of the cow, and 450 parts of the urine of the horse. Hence it is evident that it would be of much importance if none of the human excrements were lost, especially when we consider that with every pound of urine a pound of wheat might be produced. Now I would suggest to your correspondent the best and most economical method I know of preserving unimpaired the most valuable element in night-soil, which is as follows:—To every 100 lbs. of night-soil add 7 lbs. of sulphate of lime (gypsum) in powder, a double decomposition will ensue, and the result will be, instead of sulphate of lime and carbonate of ammonia, carbonate of lime and sulphate of ammonia; the latter a soluble salt which cannot be volatilized. It might now be mixed with other compost, or dried any way thought proper, and applied to the roots of the vegetable, to be again transformed into bread, butter, cheese, &c.

Chloride of calcium, sulphuric or muriatic acid, substances of low price, would completely neutralize the urine, converting its ammonia into salts which possess no volatility.

I would also suggest that if the floors of stables be strewed from time to time with a little sulphate of lime, they will lose all their offensive smell, and none of the ammonia which forms can be lost, but retained in a condition serviceable as manure. In close stables the horse's health would be better preserved, and they would not be so liable to get blind as now. $\frac{1}{2}$ lbs. of sulphate of lime will fix as much ammonia as is produced by 100 lbs. of horse's urine.

I am, Sir, your obedient servant,
Wanebridge, Nov. 14. GREGORY BRABYN.

steel forgers in England; and this week a very large supply arrived at the new quay for shipment to London. It is made up in the shape and size of soap bars, and so powerful is the compression employed that the original peat is hardly to be recognized in the black and metallic looking mass which the machine perfects. The properties of this fuel are found to be highly advantageous in the branches of manufactures above referred to, and its great economy is evidenced in the reduced price at which cutlery wrought with it is offered for sale. Sheffield razors, bearing the mark "peat compressed," have been on sale this year throughout the country, we have been informed, as low as 27s. per dozen. We look for a rapid extension of the use of this valuable invention of Lord Willoughby's, not only as offering the means of procuring for the inhabitants an abundant supply of a more cleanly and useful fuel than they have hitherto, from their inland situation, been able to obtain, but opening up to them a profitable branch of industry, for which the field is nearly as inexhaustible as that of the material.—*Perth Courier*.

TO MR. READ, VET. SURG.

SIR—Allow me (through the medium of our excellent friend "The Editor of the Mark Lane Express") to thank you for the valuable and scientific treatise you of late gave the public on the "Hoose" in cattle. Much as I feel indebted for this communication, I am not satisfied without asking for more; and I am induced to do so, from the readiness you displayed in correcting the error of the printer, in his mistake of the terms "Hoose" and "Hoove."

My request is—that you will favour us with a paper on the proper treatment of calves when troubled with that horrid coughing complaint. Should I be asking a favour before conferred, my apology is, a want of time to examine the columns of your Journal so carefully as I could wish. I have in my care at this time a lot of sixteen yearlings troubled with a cutaneous disease (which reminds me very much of ring-worm in children), having round and oval spots about the face and other parts. It appears catching from contact. My "cow-leech" gave his opinion, and said he could cure it, and so he may, but I should be far more pleased with yours, if I might venture to ask it. Trusting to your liberality, allow me, Sir, to subscribe myself,

Your's, obliged,
A NORFOLK STEWARD.

Nov. 14.

ON BREEDING CATTLE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I observe in your paper of the 9th inst. a letter from Ythan Side, in the county of Aberdeen, signed Agrestis, which appears to have been originally published in a local paper, giving an excellent account of the rise and progress of short-horned cattle in that quarter.

I confess that I long entertained the prejudice which Agrestis describes, and which was not removed by the high prices which some of my neighbours obtained for crosses, brought to maturity at less expense than cattle of my own, which did not realize so much by twenty per cent.

The short-horns I at first saw were generally large, coarse, fleshy animals; I did not like them, and I frequently asked the question stated by Agrestis, as to our soon "substituting an animal for our native breed, for which our soil and climate were not adapted." I at the same time saw with infinite regret what Agrestis mentions as observable on Ythan Side, that the size of our cattle did by no means progress with our improving agriculture, but rather the reverse.

Some of the short-horned cattle I have lately seen

COMPRESSED PEAT FUEL.—We have referred to a machine, some time ago invented by Lord Willoughby d'Eresby, and latterly perfected by skilful artisans under his direction, for compressing peats. One of his lordship's tenants, on the Drummond Castle Estate, Mr. Clark, at Coryour, has of late been manufacturing the new fuel, chiefly for the jewellers and

are of a very superior description to those first common in this locality; but the circumstance which completely overcame every doubt in my mind, was seeing at our last Banffshire Show some second crosses, first-rate animals—exceeded however, if possible, by a large lot of beautiful *heifers* (or *queys*, as we call them) from first and second crosses with short-horns, by an *Aberdeenshire bull*; thus proving that crossing by pure blood, on either side, produces an animal infinitely superior to our native breed.

Believing with Agrestis that local observations such as these are of more importance than whole essays of opinions unsupported by facts, your giving this letter a place in your widely-circulated columns may be useful in dissipating prejudices, which, in reverse of what used to prevail in Scotland, are, with some exceptions, more tenaciously held by the proprietors than tenants—which circumstance accounts for the want of encouragement afforded by the Highland Society; whilst, such as Agrestis and his neighbours, by outstepping even that intelligent and patriotic body, confer the more merit on the enterprising farmers of Aberdeenshire.

I am, Sir, your obedient Servant,

Banffshire, Nov. 13.

AGRICOLA.

ISLE OF THANET FARMERS' CLUB.

FIRST REPORT.

PRESENTED AT THE ANNUAL MEETING, HELD AT MOUNT PLEASANT, OCTOBER 13, 1840.

Your committee have great pleasure in presenting the first report of "The Isle of Thanet Farmer's Club." They take the opportunity to express their entire conviction of the value and importance of such institutions. The interchange of thought on those subjects which are especially interesting to agriculturists, the free communication of plans and experiments, the stimulating influence of example, and the habits of reflection and observation induced, encouraged as they are by the hope of ultimate profit, cannot but be accompanied by useful results. If in the first instance the want of knowledge or skill be reluctantly discovered, and the farmer be led to conclude that he has yet very much to learn, such effects are salutary, and their operation will prove highly beneficial. He who never looks beyond his own circle will soon resign himself to ease and slumber; and those who are contented with their present attainments, will of necessity remain in a stationary position: but the thoughtful observer, like the bee or the ant, will gather honey from every flower, accumulate fresh stores of knowledge, and employ all his powers in furthering the great practical purposes of his calling. General improvement must ensue; and your committee have no hesitation in recording their assurance, that the establishment of numerous societies for the promotion of agriculture, constitutes the present a most auspicious era in the history of the science, promising advantages of no common order. Every such institution deserves to be regarded as a national blessing.

Although "The Isle of Thanet Farmers' Club" aspires to no high rank among its contemporaries, the committee are encouraged to believe that many good effects of its establishment have been already realized; and they feel satisfied that in proportion as its objects are understood they will

be appreciated, and that the members will aim by punctual attendance, unreserved and orderly discussion, and harmonious co-operation, to secure all the advantages which the institution is designed to confer.

The club was formed July 9th, 1839. Rules for its management were framed at a subsequent meeting, held on the 30th of that month. After a long adjournment, rendered necessary by the harvest, the members met again on the 23rd of September, when the appointment of officers and committee for the year took place, and arrangements were made for the monthly meetings of the club, which it was agreed should be held, during the first year, at Mount Pleasant.

At the first monthly meeting, held in October, the following question was discussed:—The sorts of wheat best adapted, generally, to the soil of the Isle of Thanet, and the best method and season of planting it. A member stated that he had planted four sorts of wheat, about the middle of the preceding November, fifty five perches of each, on the same day, and on the same tilth, and that the following were the results:—

SORT.	GROWTH PER ACRE.			WRIGHT PER BUSHEL.		VALUE PER Q.			VALUE PER ACRE.		
	qrs.	bush.	gal.	pts.	lbs. ozs.	£	s.	d.	£	s.	d.
Whittington	5	0	6	1	61 4	3	14	0	18	17	1
Leghorn	5	2	5	0	63 6	3	8	0	18	2	3
Salmon	5	2	2	7	61 1	3	6	0	17	9	5
Golden Drop	4	6	6	3	63 5	3	7	0	16	4	11

A sample of Syer wheat was shown, which had proved very productive. The Talavera wheat was much commended by a member, who had grown it for several years. Mr. E. Collard, a visitor that evening, stated that he had sown some wheat, the name of which he did not know, and had procured, by dibbling in the garden at six inches apart, at the rate of ten quarters per acre. It was ultimately resolved:—

"That the information produced at this meeting is not sufficient to warrant the adoption of a specific resolution on the subject; but that it is very desirable that several sorts of wheat, already proved to be valuable, should be made the subjects of experiment;—that the following sorts be especially recommended for such experiments, viz.,—the Syer, the Whittington, the Leghorn, the Golden Drop, Mr. E. Collard's un-named sort, and the Hoary White; and that such members of the club as may resolve to make such experiments, be particularly requested to accompany their future statements with a description of the soil on which the experiment has been tried."

"The preparation of wheat for planting" was then discussed, and several members described the methods adopted by them, but no resolution was passed on the subject.

At the same meeting a conversation took place "on the best method of breaking up sainfoin ley and lucerne for wheat," and it appeared to be the general opinion, that when sainfoin ley or lucerne is to be broken up and cropped with wheat, the furrows should be well turned over, the soil thoroughly pressed or trodden immediately after ploughing, and a sufficient dressing of manure applied.

The meeting was closed by a discussion of the "safest method of feeding sheep and lambs on turnips, especially in the early part of the winter." On this subject the following resolution was passed:—

"That the safest method of putting sheep and lambs to turnips in the early part of the winter, is to allow them first to fill themselves with sainfoin, clover, or other food of a similar description, and by no means to close-fold them on turnips."

At the meeting in November, a small apparatus was exhibited by one of the members, intended to regulate the draught of the three-horse plough, and to preserve steadiness of action. This led to a conversation on the comparative advantage of ploughing with two, three, or four horses; in the course of which an account was given of the state of ploughing in some parts of Scotland, and the secretary was directed to write to the secretary of the "Highland and Agricultural Society of Scotland," inquiring whether Wilkie's turn-wrest plough has been brought into operation, and with what success.

"The most approved method of storing turnips" was then taken into consideration. One member stated his practice to be, to top and tail them in the field, remove them in a dry state, and deposit them in chalk caves on his premises. Another member recommended placing them singly, close together, and in an upright position, in a meadow, by adopting which method he had found them keep well till lambing time. The resolution passed was as follows:—

"That in the opinion of this meeting, turnips should always be stored in a dry state, and covered lightly, so as to keep out the wet, but not altogether to exclude the air, or prevent the escape of heat from the mass.

"The best method of fattening beasts in the winter season" was then discussed. The member who introduced the question offered the following observations, which were generally approved. "That good sorts should be chosen; that the short-horned are generally considered the best, but that in this district the Sussex breed are the most profitable; that they should be in good condition when put up, and not confined too closely, but have a warm shed to lie down in, and room to move about in the yard; that the hay should always be given out of doors; that oil-cake, Swedish turnips, and hay, form the best food; that the change of food should in all cases be gradual, one oil-cake a day being given at first, and the quantity gradually increased; that more food should never be given at a time than the animal will consume; that it is a great error to give a larger feed at night, which only occasions bad feeding the next day; and that in case of over-feeding, the following mixture has been found efficacious:—one pound of Epsom salts, and two drachms of ginger, mixed in a pint and half of boiling water."

In consequence of the absence of a member who had undertaken to introduce another question, it was resolved:—

"That if any member who has introduced a subject for discussion shall be prevented from attending the meeting at which the discussion is appointed to take place, he shall be expected to depute some other member to introduce the question in his name."

A letter from Sir Charles Gordon, secretary to the "Highland and Agricultural Society of Scotland," was read at the December meeting; it inclosed a communication from Mr. Slight, curator of the Society's museum, at Edinburgh, respecting Wilkie's turn-wrest plough, which it appears has not yet come into extensive use.

"The cheapest and best method of fattening

hogs" was a subject which elicited scarcely any discussion, the members present being generally of opinion that steamed potatoes and barley-meal, in the proportion of two-thirds of the former, and one third of the latter, form the best food for that purpose; and that the pork so fed is prime, and boils out less than pork fed in any other way.

A discussion then took place on "the wages of agricultural labourers." It appeared that the following wages are now generally paid in the Isle of Thanet, viz.:—for able-bodied day labourers, 2s. 6d. per day; for thrashing reaped wheat, 4s. per quarter, mown ditto, 4s. 6d. to 5s., barley, 2s. 6d., oats, beans, and peas, 2s. It was then resolved:—

"That in the opinion of this meeting, the wages now generally given in this district appear to be fair and sufficient; that labour will always find its true value in the market, and that therefore it would be inexpedient to attempt to establish any uniform scale of payment."

At the same meeting a member read a paper on "the best method of cropping the land with beans," from which the following is an extract:—

"With respect to the best method of putting in beans, the plan which I at present think best, and which I consequently adopt, is to strike the furrows north and south, if convenient, ten to the rod; to drop the beans from four to six inches apart, according to their size,—common ticks, four inches, larger beans, five or six; to heel them with a double mould-board plough, and consequently to let the land lie in baulks, until it is necessary by the growth of the beans to harrow them down."

The advantages of this plan over drilling I take to be these:—First, that less seed is consumed; for whereas, I believe, four bushels per acre are generally drilled in, from two to three bushels are sufficient to drop. Second, that the beans come up regularly, and not in lumps of four or five together, and then a space, which is frequently the case when drilled; each single bean consequently stocks, and does better. Third, that you give employ to a number of people, with no expense to yourself, the saving of the seed paying the droppers; which I consider to be a very essential benefit.

"I think the advantages of healing with a plough are,—that supposing the beans have begun to grow in a few fine warm days, and it then becomes winterly, with sharp frosts, which is frequently the case, they are then protected, and do not receive that severe check which they otherwise would; and that by the time the beans are sufficiently grown to make it necessary to harrow down the baulks, a considerable quantity of spring weeds have grown also, which you destroy by levelling the ground."

At the January meeting two letters were read from Mr. J. A. Ransome, of Ipswich, containing information respecting ploughs manufactured by the firm of which he is a member. It was considered desirable to introduce the Rackheath subsoil plough into the district, and eleven members of the club entered into a subscription for that purpose. The plough was afterwards supplied by Messrs. Ransome, and has been used in various parts of the Island, but your committee are not able to state whether any beneficial results have followed. They are of opinion, however, that a fair trial has not yet been given, as the plough was not brought into operation till the spring, and the summer proved unusually dry. If

the subscribers use it extensively, on different soils, in the present autumn, its utility will be much better tested.

At the same meeting, "the rotation of crops best suited, generally, to the soil of the Isle of Thanet," was discussed. A member read a paper on the subject, in which he contended that corn cannot be profitably grown in this district without giving rest to the land by fallowing it. Several plans of rotation were mentioned, and it was at length resolved:—

"That in the opinion of this meeting, the following course, which has long been in use in a large portion of the Isle of Thanet, is on the whole the best adapted, with occasional variations, to the soil of this district; that is, supposing the soil to consist of 400 acres, there will be—

	ACRES.		ACRES.
1. Turnips	50	3. Beans	50
Peas	50	Clover	50
2. Barley	100	4. Wheat	100
		400	

A letter from the "Grove Ferry Club" having been read at this meeting, requesting the co-operation of the "Isle of Thanet Club" in opposing the present movement against the corn laws, it was resolved to convene a special meeting of the members of the club, to take the letter into consideration. The special meeting was held January the 28th, and after a lengthened discussion the following resolutions were passed:—

First. "That in the opinion of this meeting the 14th rule of the club precludes it from entertaining questions of a political nature, or which refer to any matter to be brought forward or pending in either House of Parliament."

Second. "That a copy of the preceding resolution be forwarded to the secretaries of the "Grove Ferry Club;" and that the secretary be directed to express, at the same time, the entire willingness of this club to co-operate with the "Grove Ferry Club" in the improvement of agriculture."

The subject was resumed, however, at the meeting in February, and the secretary was directed to correspond with other clubs, particularly in Norfolk and Suffolk, with a view to ascertain their practice in reference to the discussion of the existing corn laws at their meetings.

"The cheapest and best method of keeping farm horses" was opened for discussion at this meeting. In consequence of the importance of the subject, and the variety of opinion expressed, the further consideration was postponed, and the club proceeded to the next question, "the sorts of barley best adapted to the Isle of Thanet." A member furnished the following statement of the result of his experiments with the Chevalier and Annat varieties:—

TILTH.	VARIETY.	QUANTITY ON SEVEN PERCHES.		WEIGHT PER BUSHEL.		QUANTITY PER ACRE.
		bsh.	qt.	lbs.	53 7-8ths	qr. bus. gl.
Potatoe Ground	Chevalier	2	4	5	53 7-8ths	7 2 7
Ditto	Annat	2	4	7	52½	7 3 5
Pea Grattan	Chevalier	2	3	2	50½	6 7 0
Ditto	Annat	2	2	0½	50½	6 3 4

The general opinion seemed to be in favour of the Chevalier.

At the meeting in March, letters were read from farmers' clubs at Ashbocking, Yoxford, Beccles, Halesworth, Wrentham, Walton, Need-

ham Market, Wickham Market, and Grove Ferry, detailing their respective practices with regard to the description of the existing corn laws at their meetings. A member then gave notice of his intention to move at the next meeting that the 14th rule of the club should be altered, so as to stand thus:—

"That all political subjects shall be totally excluded from the discussions of this society; excepting those relating to the corn laws, or any other measures that may be brought before Parliament, affecting agriculture."

The motion was considered at the meeting in April, and adopted.

"The feeding of farm horses" was again discussed in March, and a decision again postponed. At the meeting in April, the subject was resumed, and sundry plans and calculations presented to the meeting, differing much from each other. The following resolutions were ultimately passed:

First. "That, according to the information now laid before the meeting, the average annual expense of keeping farm horses in this district is about £18 each; but that whereas the lucerne or clover specified in the calculations now produced is valued at a low price, it appears to this meeting that farm horses are not commonly kept in this district for less than £20 per annum; but that as to which of the methods now described is the "cheapest and best," the meeting is unable to decide, as the expense of keeping horses must necessarily vary with the quantity of land ploughed on the farm, and the nature of the soil."

Second. "That the members of this club be recommended to keep as accurate accounts as possible of the expense of keeping their horses, in order that the subject may be more fully discussed at some future time."

Mr. J. A. Ransome, of Ipswich, favoured the club with his company at the meeting in May, and communicated important and valuable information on several topics. The subject for the evening was "the best sort of artificial manure for turnips." Mr. Ransome stated that Mr. Morton, the author of the work "on soils," had made experiments on the growth of turnips with pure dung, mixed manure, farm yard manure, straw, and other articles; and that the value of the crop lessened in the order in which the different manures are mentioned, that grown from pure dung being decidedly the best. It was resolved:—

"That, while the statements made at this meeting lead to the conclusion that farm-yard manure is probably the best and most profitable manure for turnips, sufficient information has not now been communicated to enable the meeting to come to a decision on the question before it; and that it be particularly recommended to the members of the club to test by experiment different sorts of manure for turnips, to keep accurate accounts of the comparative expense and the result, and to report the same to the club as soon as they are ascertained."

At the same meeting, it was resolved:—

"That the thanks of the club be forwarded to the committee of the 'Royal Agricultural Society,' for the important and valuable paper they have circulated on the diseases of cattle."

"The best method of cultivating carrots" was considered at the June meeting; and a member communicated the following information relative to the mode of cultivation he had adopted. The land was ploughed and manured early in the

winter, and spuddled twice in the spring; the carrots were sown the first week in April, in furrows eleven to the rod; they were well hoed, skimmed two or three times, and thinned. The produce was about 25 tons per acre.

At the same meeting, "the best method of making dung-mixens" was discussed, and the further consideration of the subject postponed. The discussion was resumed at the meeting in July, and the following resolution was passed:—

"That in the opinion of this meeting, it is very desirable to spread a thick layer of mould in the farm-yard and on the mixen spot before the manure is collected; that if the manure is wanted early, it should be thrown on the heap from time to time, and not pressed down; but that if it is not wanted early, it should be trodden down, by driving the loaded cart upon it, to prevent evaporation; that care should be taken to provide a sufficient quantity of moisture, by mixing seaweed with the manure, or salt water, urine, and similar liquids; that the mixen should be covered with a layer of mould or blight, and that in ordinary cases it should be turned about a month before it is wanted on the land."

Another question was also entertained at the July meeting—"The comparative advantages of reaping and mowing wheat," and it was resolved:—

"That it is more advantageous to mow wheat than to reap it, inasmuch as all the straw is secured, the grain is less injured by wet weather, and may be sooner harvested, and the land may be cultivated again at an earlier period, and is in a cleaner condition. But that, while mowing is preferable to reaping, bagging is still better than mowing, since by that method the whole of the grain is preserved, and nothing left on the ground; on which account it is recommended to the members of the club to encourage workmen who are skilled in bagging, and also to require them in all cases to use the lockbands, which are less liable to break than bands made in any other way."

There were so few members present at the meeting in August, that no discussion took place.

At the meeting in September, "the best method of clearing the land after harvest" was taken into consideration; and the conclusion arrived at may be thus briefly stated:—

"That, in general, the best plan of clearing the land after harvest is to spuddle it with a broad share, and then nidget, and afterwards harrow it; that on wheat and barley grasslands, and when the land is very foul, the triangular harrow should be first used; that when there is much grass in the land, the best plan is to balk and split repeatedly, that the grass and roots of weeds may be thoroughly brought to the surface; and that pea grasslands and all lands intended for turnips or barley should be ploughed as soon as possible, and always, if practicable, before Michaelmas."

Your committee have further to report, that it has been resolved to have a show of roots at the monthly meeting in December next, and that several members of the club have entered into sweetpetakes for the occasion, in the following terms:—

AT ONE SHILLING EACH.

Mangel wurzel. Six roots to be shown, from not less than a quarter of an acre.

Turnips. Both Swedes and other sorts. Twelve to be shown, from not less than two acres.

Carrots. Six to be shown, from not less than a quarter of an acre.

Potatoes. The entire produce of twelve roots to be shown, from not less than half an acre.

AT FIVE SHILLINGS EACH.

For the best field of **Turnips**, not being less than two acres, to be determined by reference to the weight per acre, and other circumstances, at the discretion of the judges.

With the funds entrusted to their care your committee have purchased some important works on agriculture, which are in circulation among the members of the club in the manner usually adopted by book societies, three weeks being allowed for the perusal of a quarto volume, a fortnight for an octavo, and a week for a duodecimo.

The Farmer's Magazine, the Quarterly Journal of Agriculture, and the Journal of the Royal Agricultural Society, are also taken in for the use of the club, and three days are assigned for the perusal of each number. A fine of six-pence per day will be levied for the detention of a volume or number beyond the allotted time.

Your committee have examined the treasurer's account, and find that he has received £13 10s., and expended £13 3s. 7d., leaving a balance of 6s. 5d. in his hands. They have also the pleasure to state that the club now consists of fifty-two members.

Having thus reported the proceedings of the club during the past year, your committee have only to repeat their conviction that a wide field for observation and experiment is open to the agriculturist, and that young farmers especially may derive immense advantage from the study of agricultural works, now happily no longer few and rare, and the acquisition of sound scientific information. It was stated in the prospectus issued previous to the formation of this society, that "among the objects sought to be attained by the farmer's clubs, are the following;—to ascertain the nature and qualities of the soil and subsoils of the district; to inquire into the comparative values of different sorts of manures; to test by experiments alleged improvements in cultivation, in agricultural implements, or in management of stock; to discover the most profitable varieties of corn, seeds, or roots, and the most advantageous rotation of crops; to collect information respecting the state and progress of agriculture, by correspondence, by the establishment of agricultural libraries, and such other means as may be deemed expedient; in a word, to advance the interests of agriculture in every possible way—reducing theory to practice, and throwing the light of knowledge and science over the most useful and important of the arts of life." In aiming to accomplish these great objects, the observant eye and the attentive ear of the enquirer may be unremittingly engaged; while it will ever be found that pleasure is combined with profit, and that "knowledge is power."

THE FARMER'S ALMANAC.—We have to acknowledge the receipt of a copy of the *Farmer's Almanac*, for 1841, by Cuthbert Johnson, Esq., and Wm. Shaw, Esq. The names of these two gentlemen on the title page augur well for the contents of the work; and an inspection of the latter more than answers expectation. The almanac contains indeed a mass of the most useful matter for those to whom it is dedicated, and moreover (no small consideration) at a cheap rate.—*Sussex Advertiser*.

SUSSEX AGRICULTURAL TURNIP AND MANGEL-WURZEL SHOW.

(FROM THE SUSSEX EXPRESS.)

We beg to draw the particular attention of our readers to an excellent letter from Sir C. M. Burrell, Bart., on the subject of growing the white carrot, the value of which we can fully confirm, having this year (although the season has been very unfavourable) obtained highly satisfactory results respecting it. We were induced to experimentalise on this root at the recommendation of the hon. baronet, given last year. Next year we shall offer a premium for samples of white carrots.

WHITE CARROTS.

Knepp Castle, Nov. 3.

SIR,—Perceiving, on perusal of your last *Express*, your notice respecting the premiums offered for specimens of turnips and mangel-wurzel, with accompanying statements of their culture, and appreciating the probable beneficial results of such an exhibition at Lewes, I trouble you with the following practical statement in support of my last year's published opinion on the preference of the culture of the white cattle carrot over that of the parsnip for agricultural purposes, and which was made in consequence of a letter from a correspondent in the *Lewes Advertiser*, advocating the growth of the parsnip, in which 500 bushels per acre was stated as the produce. Conceiving that from my then crop of white carrots, grown on a *very indifferent* field, the yield of which was 100 bushels per acre, without the green tops, that their culture would be more advantageous on stiff soils than that of the *parsnip with a return of about a moiety of the produce only*, I laid a comparative statement of my crop before the public, that agriculturists of intelligence and spirit might try the results by sowing both sorts on similar quality of land. But satisfied as I am myself at the preference of the white cattle carrot on my farm over all roots fit for cattle, I again sowed four acres broadcast on land of *better quality* this year, and so far as experience shows in the raising and housing of about half my crop, there will be, as near as we can determine, 1,300 bushels per acre, after separation from the green tops; and considering the depth whence their nourishment is obtained (in one instance no less than 3 feet 5½ inches, and in several others nearly as deep), I do not view it as a very scourging crop, especially considering the vast increase of nutritious winter fodder, with consequent economy of hay, for both fattening and lean stock, and *especially milch cows*, their cream and butter being as good and free from any ill-flavour as when feeding on the pastures; and likewise looking to the great increase of farm-yard manure resulting from its consumption, to which may be justly added the clean, friable, and finely pulverised state in which the ground is left after the removal of the crop, particularly well adapted for ridging up during winter and sowing with barley and seeds in the ensuing spring. I do not hesitate to bring the results of my experience to your attention and consideration, how far it may be desirable hereafter to introduce the white cattle carrot among those encouragements you offer in the shape of premiums for turnips and mangel-wurzel. For the obtaining of the seed I recommend both Messrs.

Wrench and Sons, of King William-street, seed merchants, and Mr. Gibbs, of Half Moon-street, from either of whom good seed may be depended upon. My first inducement to try it was the representation of Mr. Eaton, M.P., whose father, I understood, obtained the seed from Holland; with a result on sowing it on indifferent land in Cambridgeshire, of 1000 bushels per acre, with which my crop in 1839 tallied very accurately, I led myself to believe (but from the dryness which prevailed after sowing my seed last spring, and the consequence of a fresh growth on rain falling after hoeing in summer) that the carrots would have been of more equal size, and the amount of the produce possibly greater in weight and value. For the cultivation of the white carrot, free-working deep soils, well and deeply drained and *subsoiled*, are to be preferred; and the better heart the ground is in, and the cleaner the tilth, the greater will of course be the chance of a remunerative and beneficial crop. Mine were sown broadcast, 6lbs. to the acre, costing last spring 1s. per lb.; but whether being sown in drills at proper distances, and ridged up, would improve the crop, I leave to the discriminate judgment of practical and more scientific farmers. I shall only add, that those who at my recommendation have sown the white cattle carrot express their satisfaction at their adoption; and my neighbour, the Rev. William Woodward, of West Grinstead, having sown them on a small breadth of land, has had cause to be satisfied with the result equally with myself. You are welcome to make what use of my observations you think proper, accepting my excuse for sending them hastily, and I fear, rather incoherently written, my time being too much occupied to make a fair copy.

I am, Sir, your humble servant,

CHARLES MERRICK BURRELL.

ON SMUT IN WHEAT.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Being a constant reader of your valuable publication, I have perused the several articles that have appeared in your numbers from time to time, relating to smut in wheat (being myself a large wheat grower), and wonder none of your numerous correspondents have suggested a more simple preventive than the use of poisonous ingredients, which I consider injurious to the seed, besides numerous other objections which I could name. The means I take to prevent it are perfectly simple, and if all wheat growers will follow the directions here given, they will have no need of substituting poison.

Choose a clean brick floor, on which put three bushels of wheat, then stir a shovel full of quick lime in about four gallons of boiling water; pour it on the wheat immediately, and mix it well together, taking care that every corn is steeped; when the desired quantity is finished let it be put together in a heap (the closer the better), and cover with cloths to about four sacks' thickness; let it remain ten hours, then take off the covering, spread it thin, and it will be ready to sow or drill almost immediately. I have practised the above method for the last 35 years, during which period I have never grown a single smut. Should you deem this worthy a place in your valuable columns, you will oblige,

Sir, your obedient servant,

Leicester, Nov. 14.

C. R.

ON COAL-ASHES.

Coal-ashes have long been known as a valuable article in improving all stiff tenacious soils, in opening the texture, and in correcting the tenacity; and in a pulverized state they form an excellent top-dressing for young grasses. They are very seldom found unmixed with other substances from the dwelling-house—a calx or cinder mostly accompanies, and except near large towns they form an inconsiderable article as a manure. Lime and magnesia are found in coal-ashes; but they are chiefly composed of siliceous and aluminous earths, and vary much in their nature and proportions.

They contain much carbonic acid gas, carbon and hydrogen, with some iron; but our knowledge of them is very imperfect. The principal use is in top-dressing clovers in March and April, at the rate of 50 to 200 bushels per acre, and usually applied in moist weather, when the effects are very great and certain. The calcareous matter they contain imparts the warming and sweetening quality that is found attached to all residual substances from combustion; and accordingly the use of coal-ashes, and of all alkaline and saline matters are always recommended to be used on all soils that produce sorrels, rushes, and mosses, in order to banish those plants, by depriving the land of the peculiar properties that are necessary for their production. But it may be observed, that such plants cannot exist where farming prevails, and that the action of manures should be restricted by every possible means to the promotion of those plants which the cultivator uses as a crop. In inland situations, where the supply of ashes is limited, an excellent use may be adopted by throwing them into the night-soil reservoirs, where they will absorb the liquid parts, and ultimately form a solid mass, thoroughly impregnated with the urine; and in the neighbourhood of towns, where they can be got in quantity, and where the pulverization of the ashes is sufficiently fine, they may be very beneficially used as a top-dressing; or probably equally, if not more beneficially, by being mixed in a compost with good earths, and applied in the Spring on grain lands, and barrowed in with the seed. Coal-dust, or the pulverized particles of coal produced during the different operations at the pits, has been found useful in some cases on stiff lands; but, it is evident, that the action in that case would arise wholly from mixing with the soil, and opening the texture as an earthy ingredient; for the substance applied contains none of the elements of vegetation, to be supplied directly by itself, or the power of producing thereby any stimulating and reciprocal action. Ashes, in a fine or riddled state, are useful for mixing with bones, at the rate of 1 to 20, in order to produce heat before sowing; though practice is far from confirming that process as being essentially necessary, which may arise from different temperatures of soil, and air during the applications.

J. D.

AGRICULTURISTS NOT IMPROVERS.—It is curious that many to whom improvements in agriculture are traced, were not professional farmers, but men engaged in other pursuits, who, with cultivated minds, turned their attention also to this subject. Thus, the first English Treatise on Husbandry was written by Sir

A. Fitzherbert, Judge of the Common Pleas, in 1534, and from this, Harte, Canon of Windsor, in his *Essays on Agriculture*, dates the revival of agriculture in England. Tusser, the author of "Five Hundred Points of Husbandry," published 1562, was a scholar of Eton and afterwards of Trinity Hall, Cambridge, before he applied to farming and literature. Sir R. Weston, who was ambassador from England to the Elector Palatine and King of Bohemia in 1619, introduced clover into England; his "Discourse on the Husbandry of Brabant and Flanders," was published in 1645, and is said to mark the dawn of the vast improvements which have since been effected in Britain. Evelyn, who is considered one of the greatest encouragers of improvements that had ever appeared, was, it is well known, a gentleman attached to literature and science, and often employed in the public service. He published in 1664, his "Sylva, or a Discourse on Forest-trees and the Propagation of Timber in his Majesty's dominions," with many other works, which had a great influence in the improvement of the country. Jethro Tull, who introduced the drill husbandry, and published his work on horse-hoeing husbandry in 1731, was bred a barrister; he first made experiments on his own estate, and then practised farming.—*Dr. Royle's Productive Resources of India.*

ON PLANTING POTATOES.

SIR,—The following is the result of an experiment on a small scale of planting potatoes *whole*, or cutting them into *sets*. I purchased a gallon of the Prince Rohan variety, and picked out ten of the smallest, which I set whole two feet apart in the rows. They weighed 3lbs. 8oz., and the produce was 89lbs. A single root consisting of twenty-six potatoes weighed 11lbs., and the largest potatoes weighed 2lbs. The other portion I cut into fifty-four sets, and planted them one foot apart in the rows; these weighed 4lb. 12oz., and the produce was 222lbs. A single root of six potatoes weighed 10lbs., and the largest potatoe 3½lbs. The most remarkable difference in this produce was the size of the potatoes, for you will observe, that the root of those which were set whole consisted of twenty-six, and only weighed 11lbs., when a root from one of the sets which had six potatoes weighed 10lbs.; those from the sets were very superior in quality as well as in size. The produce as to weight is also very much in favour of those which were cut, 4lb. 12oz. producing 222lbs., and those which were set whole only produced 89lbs. from 3lb. 8oz.

This experiment, as far as it goes, proves that the largest potatoes cut into sets will produce a larger and better quality, and double the weight of those which are set whole. The produce is much the same per yard, for I find from those set whole, I had 12lb. 11oz., and those cut into sets I had 12lbs. per yard. They were planted on the 20th of April, and got up on the 6th October.

DR ROHAN.

WOODBIDGE FARMERS' CLUB.—Subjects for discussion at the monthly meetings:—

- Jan. 13, 1841. On the propriety of manuring maiden layers.
- Feb. 10. On the varieties of Spring corn, and preparation of land for the same.
- March 10. On weaning and rearing neat stock.
- April 7. On preparing fallows for vegetable crops.
- May 5. On the management of the hay crop.
- June 9. On sowing vegetable crops.
- July 7. On harvesting corn.
- Sept. 8. On feeding agricultural horses.
- Oct. 6. On preparation of seed wheat.
- November, annual meeting.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND AND THE VETERINARY COLLEGE.

There has perhaps never occurred a period when the importance of the veterinary profession to the agriculturist has appeared so prominently as during the past year. An epidemic, in some instances fatal, and in all cases productive of great loss to the farmer, has spread, and is still spreading throughout the country, attacking cattle, sheep, and pigs. It is a malady which, in common with other diseases, human skill, to whatever degree of perfection it may be brought, may never be able to avert. The same diligence and attention to the diseases to which these animals are incident, cannot fail however to attain an equally successful result as the study of the diseases of the horse has produced. It should seem, from proceedings now going on, that there is a considerable number of members of the veterinary profession, who think that a great improvement might be effected in the system of education pursued at the Veterinary College, and that the profession, as a body, has a right to call upon the legislature for certain privileges which they do not now enjoy. Upon these points we offer no opinion. There is, however, one question on which we entertain an opinion, in common with a considerable number of the movement party, namely, that the course of study adopted at the Veterinary College, in regard to the diseases of cattle, sheep, and pigs, is not by any means efficient. If the question stood as it did before the Royal Agricultural Society made the liberal contribution of two hundred pounds per annum to the Veterinary College for the express purpose of promoting an improved system of education, in this particular branch, we should have only felt it necessary to appeal to the Veterinary College, as best consulting the interests of the members of the profession, by qualifying them to treat successfully the diseases of animals of such great value to the farmer. As the question now stands, however, we feel ourselves placed in a different position. The Royal Agricultural Society has placed the sum of 200*l.* per annum at the disposal of the Veterinary College, for the express purpose of improving the system of education in reference to the diseases of cattle, sheep, and pigs. We deprecate the nig-gardly, meddling spirit, which would seek an interference in the conduct of the affairs of the Veterinary College, merely because a contribution is made to the funds. We should be content to state the object, pay the money, and leave it to the right feeling of the managing parties, to see that sum properly expended. But if we are told by members of the veterinary profession itself that the money is not well applied; if we are told that the receivers of this money do little more than has been done heretofore,—we hold it to be a just subject for animadversion,—we hold it to be the duty of the Council of the Royal Agricultural Society to inquire into the matter.

We learn from the "*Veterinarian*," the accredited organ of the profession—and in the pages of which, from the knowledge we have of its editor, we

know that nothing incorrect would be stated—that "all that was said" by Professor Sewell, in his introductory oration on the 2d of November, "of other animals besides the horse was included in two short sentences; and that they did not contain the slightest pledge that the maladies of these animals would ever receive the attention which they deserve." If it be true, that the *whole*, or the principal part of the funds contributed by the Royal Agricultural Society goes into the pocket of Professor Sewell, surely the subject deserved from him at least some further notice. But it is also stated upon the same authority, "that with the exception of a few slight and unsatisfactory glances at the diseases of sheep and cattle, only *three lectures* were, during the whole of the session (last), devoted to this all-important subject." Two hundred pounds for *three lectures*!!! But then, it may be said, Professor Sewell has sent a valuable communication to the Royal Agricultural Society on the treatment of the prevailing epidemic, and which has been attended with great success. Granted: we are willing to give Professor Sewell full credit for his communication, but that communication gives the results of his previously acquired experience. The sum contributed from the funds of the Royal Agricultural Society is intended to be applied to the education of the rising generation of veterinary surgeons, and we shall not be content until we see it so applied. A course or courses of lectures should be delivered upon this particular branch of study, and persons should be selected to give such lectures who are not only qualified, but who have sufficient leisure from other pursuits, to enable them to devote study and attention to that which should be considered their especial department. If we have here stated ought in error; if more has been done by the Veterinary College than we are advised of, we trust that these remarks may meet the eye of some of its members who will set us right; should such not be the case, we shall feel it our duty to revert to the subject.—*Mark Lane Express*.

HOW TO PRESERVE POTATOES.—As, generally speaking, the poor people are obliged to keep their potatoes in tumps, perhaps the following additional hints may be of some service to those who have not the convenience of a dry cellar. When the potatoes are ridged up, ready for covering, let a little straw or dry fern be spread over them, after which let a foot thick of earth be added, chopped, or otherwise rendered as fine as usual ashes; let neither a foot tread it nor a spade beat it, but leave the whole as light as the soil will admit of; but where the soil is naturally stiff, a greater thickness of it must be added, and the sides of the ridges be left as steep as possible, and the lighter the soil is put on the more frost will it keep out. The reason is obvious enough, for when light soil is laid on steep ridges rain never enters deeper, perhaps, than two or three inches, it being held in a kind of solution with the fine earth by capillary attraction; or in other words, the air in the light soil keeps the rain from sinking, consequently it runs down the sides of the ridges, and keeps the interior of the mass as dry as possible, and of course the frost never enters to a great depth. When the soil is trodden, or otherwise made firm, the air beats out of it, every drop of rain enters and sinks through the whole mass, then frost takes the liberty to follow.—*John Peerssqn*.

ON DESTROYING SLUGS BY LIME.

TO THE EDITOR OF THE FARMERS' MAGAZINE.

SIR,—As the season is again approaching, when innumerable fields of what ought to be our most productive wheat land, (that is, our strong clays after beans,) afford to the agriculturists but a miserable prospect, owing to the ravages of the slug; allow me through the medium of your most excellent journal, to inform them of a cheap and effectual cure, —one which I have adopted for several years and always with the greatest success. My plan is as follows:—as soon as the wheat should show itself from one end of the drill to the other, but which, owing to their voracious appetite, appears but on the milder and finer parts of the field, I procure as many four-bushel sacks of unslaked lime fresh from the kiln, as I have failing acres of wheat, and place the same in one or more heaps in the field, as occasion may require, and the dryness of the ground will permit; then choosing the first mild and misty day, (or indeed the first day I can find them well out,) send two men as sowers into the field, each taking a breadth of four yards or one land with us, the first man always keeping in advance from 15 to 20 yards. The instant he has scattered the lime, to extricate themselves they cast away their only shield of defence, which is their slime; the second man then overtakes them in their naked state, and the smallest particle falling upon them is instant death. I consider two great savings are effected by this mode of killing them, time and expense. Having noticed several people twice ploughing their land, harrowing, rolling, &c., for no other purpose than that of destroying them, and whilst doing the same, perhaps a heavy rain sets in, and the seeding put off till spring; whereas, by my plan, they may proceed with getting in the wheat as soon as the beans are off the land, and the total expense of destroying the slug, including carriage, sowing, &c., does not exceed from 3s. to 3s. 6d. per acre.

Should this meet with the attention of any brother clay-land farmer, I have not the least doubt of its success, and shall feel happy in being instrumental in procuring him a full crop of wheat.

I remain, Sir, yours very respectfully,
 Nov. 23rd. A LINCOLNSHIRE FARMER.

LANDLORD AND TENANT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In No. 464 of your very valuable Journal you have favoured the public with an account of the meeting of the South Cheshire Agricultural Society held at Northwich on the 29th of September last.

At this meeting a Mr. Martin, Secretary to the Society, in his speech, takes leave to recommend to the landlords of Cheshire, who have poor tenants, to lend those tenants a helping hand to bone-dust their land, charging the tenants interest on the amount of cost of the bone-dust; but of course, instead of the landlord receiving seven or eight per cent., which is something like the rate of interest generally paid for bones when applied to pasture lands, "I think," says Mr. Martin, "the landlord might reasonably require ten, or even twelve per cent. Should this meet the attention of Mr. Martin he would confer a great favour on numerous landlords and their tenantry, by causing to be inserted in the next number of your Journal, whether he means ten or twelve per cent. on the capital laid out on bone-dust, to be paid only on the year the bone-dust is applied, or to be paid annually during the term of the tenant's lease—as I take it for granted that no tenant

will bone-dust his land without having a lease of his farm.

By inserting the foregoing in the next No. of your Journal, will oblige A FARMER AND SUBSCRIBER.
 Preston, Lancashire, 11th Month, 10th.

ON THE MANUFACTURE OF CIDER.

SIR,—Being a subscriber to the Farmer's Magazine, and perceiving your readiness to insert communications, I take the liberty of addressing you, with the hope of gaining information for myself and others on a subject that I think capable of vast improvement; I mean the manufacture and management of cider. I should be greatly obliged, and I have not the least doubt that very many of your readers in cider districts would also, if some of your scientific correspondents would give, through the medium of the Farmer's Magazine, some chemical information on the subject; the nature, cause, and effect, of the different fermentations it is subject to, with directions for the management of it. I should be glad to be informed what causes the acetous fermentation, how to distinguish when the vinous ends, and the acetous commences, and if there is any article that will neutralize the cause of the acetous, without affecting the vinous fermentation; and if charcoal could not be used with great advantage, and in what manner. The less encumbered by complicated apparatus, the more attainable, and consequently more likely to be generally useful.

If some of your numerous correspondents would be so kind as to answer my queries, they would much oblige a sincere well wisher to agriculture.

Herefordshire.

W. T.

ON WIRE-WORMS, &c.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—I am glad to see the attention of some of your correspondents directed to the wire worm; many hundreds, I believe I may say thousands of acres of wheat, are annually destroyed by this mischievous little creature, and hitherto with perfect impunity. I am one of those who look forward with confidence to agriculture deriving great benefit from the aid of science, and I know no subject to which it may be more beneficially applied than to pointing out a practical method of destroying insects injurious to the food of man. Our Royal Society has now the means of commanding the best scientific information, and I trust it will use those means liberally.

With regard to smut bladders in wheat, I have strong reason to believe they will not appear on corn grown from old seed, but am not prepared to speak positively.

I have been in the habit of using a solution of sulphate of copper, in the proportion of one pound to three bushels of seed, dried with a little lime; this has effectually exempted me from the evil.

I shall be obliged by any of your intelligent correspondents informing me, through the medium of your Magazine, the proper quantity of nitrate of soda to apply to an acre of grass land; the best time of the year to apply it; the best state of the weather for its application; whether it is best applied alone or mixed with earth or other matter; and last, not least, where it can be obtained unadulterated. I am, Sir, with many thanks for the information and amusement I have derived from your Magazine, your obedient servant,
 ANTI-GREE.

RUTLAND AGRICULTURAL SOCIETY.

DECEMBER SHOW.

AWARD OF THE PRIZES.

Class I. Oxen or Steers, of any breed or weight, without restrictions as to feeding. Open to all England.

To the feeder of the best fat Ox or Steer, a premium of 15 sovs. awarded to Mr. Cheetham, of Hambleton, for his four year seven months and two weeks old Ox.

To the feeder of the second best ditto, the second premium of 7 sovs. to Mr. C. Smith, of Burley, for his four year and two weeks old Hereford Ox.

Class II. Oxen or Steers, of any breed or weight, under five years of age. Feeding restricted.

To the feeder of the best fat Ox or Steer, a premium of 10 sovs. to Lord Exeter, of Burleigh Park, for his three year and nine months old Steer.

To the feeder of the second best ditto, the second premium of five sovs. to Mr. C. Smith, of Burley, for his three year and eleven months old Hereford Steer.

Class III. Oxen or Steers, of any breed or weight, under five years of age. Feeding restricted.

To the feeder of the best fat Ox or Steer, a premium of ten sovs. to Mr. Hodgkin, of Eadenham, for his four year old Steer.

To the feeder of the second best ditto, 5 sovs. to Mr. Jas. Clark, of Burley, for his three year and six months old Steer.

Class IV. Cows or Heifers, without restrictions as to feeding.

To the feeder of the best Cow or Heifer, a premium of seven sovs. to Lord Exeter, of Burghly Park, for his three year and ten months old Heifer.

Class V. For fattened Dairy Cows, without restrictions as to feeding.

To the feeder of the best Cow, a premium of 7 sovs., not awarded.

To the feeder of the second best ditto, the second premium of three sovs. to Mr. Clarke Morris, of Oakham Grange, for his nine or ten year old Cow.

Class VI. For fattened Cows or Heifers, feeding restricted.

To the feeder of the best fat Cow or Heifer, a premium of 5 sovs. to Mr. C. Smith, of Burley, for his three year and six months old Heifer.

Class VII. To the owner, being a tenant farmer, of the best pair of Steers, bred within the district, and under two years.

The first premium of 5 sovs. to Mr. H. J. Rudkin, of Langham Lodge, for his pair of Steers.

The second premium of 2 sovs. to Mr. C. Smith, of Burley, for his pair of Steers.

Class VIII. Long woolled fat Wether Sheep, one year old, without restrictions as to feeding.

To the feeder of the best pen of three, under twenty-two months old, a premium of 7 sovs. to Mr. Painter, of Burley, for his three twenty months old Leicester Wethers.

To the feeder of the second best ditto, the second premium of 3 sovs. to Lord Exeter, of Burghley Park, for his three twenty months old Leicester Wethers.

Class IX. Long woolled Sheep, with restrictions.

To the feeder of the best pen of three, under twenty-two months old, a premium of 7 sovs. to Mr. Painter, of Burley, for his three twenty months old Leicester Wethers.

Class X. Breeding Ewes, that have suckled lambs up to the 1st July, 1840.

To the exhibitor of the best pen of five, a premium of 5 sovs. to Mr. Painter, of Burley, for his five new Leicester Ewes.

To the exhibitor of the second best, the second premium of 3 sovs. to R. W. Baker, Esq., of Cottesmore, for his five breeding Ewes.

Class XI. Long woolled Theaves, one year old.

To the exhibitor of the best pen of five, &c., 4 sovs. to the Hon. H. C. Lowther, M.P., for his five Theaves.

Second, 2 sovs. to Lord Exeter, of Burghley Park, for his five Leicester Theaves.

Class XII. Pigs of any breed or age, weight above 20 stone. Open to all England.

To the feeder of the best fat Pig, a premium of 4 sovs. to Mr. W. Snodin, of Langham, for his one year and eighteen weeks old Pig.

To the feeder of the second best ditto, the second premium of 2 sovs. to Mr. Thomas Chapman, of Whitwell, for his one year and sixteen weeks old Pig.

Class XIII. Pigs of any breed or weight under 20 stone, bred within the district.

To the feeder of the best fat Pig, a premium of 3 sovs., not awarded.

To the feeder of the second best ditto, the second premium of 1 sov. to Mr. R. Smith, of Burley Park, for his thirty-three weeks old Pig.

Class XIV. To the exhibitor of the best Mare for general purposes of Agriculture.

A premium of 2 sovs. to Mr. R. Smith, of Burley, for his four year old Mare.

Class XVI. To the owner of the best Boar.

A premium of 3 sovs. to Mr. S. Penistan, of Oakham, for his 17 months old Boar.

Class XVII. To the exhibitor of the best Bull, above 3 and under six years of age.

A premium of 5 sovs. to Mr. M. Hack, of Braunston, for his three year and nine months old Bull.

Offered by the Hon. Berkeley Noel.

Class XVIII. To the exhibitor of the best Bull, above one and under three years old.

A premium of 5 sovs. to Mr. R. Bosworth, of Gneetham, for his two year and nine months old Bull. — This class was highly commended.

Class XIX. To the exhibitor of the best Shearling Ram.

A premium of 7 sovs. to Mr. R. Smith, of Burley, for his Shearling Ram.

To the exhibitor of the second best ditto, 3 sovs. to Mr. T. E. Pawlett, of Tinwell, for his Shearling Ram.

Class XX. To the exhibitor of the best aged Ram.

A premium of 5 sovs. to Mr. John Painter, of Burley, for his three shear Ram.

Second prize to Mr. Joseph Tirrel.

Class XXI. To the owner, being a tenant farmer, of the best Heifer.

A premium of 7 sovs. to Mr. Thomas Bullock, of Manton, for his Heifer under three-years old.

To the owner of the second best ditto, 3 sovs. to Mr. J. Musson, of Colsterworth, for his two year and eleven months old Heifer.

Offered by the Hon. W. M. Noel.

Class XXII. To the owner, being a tenant farmer, of the best Heifer.

To the exhibitor, a premium of 5 sovs. to Mr. R. Smith, of Burley, for his Heifer under two years old.

Second, a premium of 2 sovs. to S. J. Welstt, Esq., of Pickwell, for his nine months old Heifer.

Offered by the Hon. Charles George Noel, M.P.

Class XXIII. To the owner, being a tenant farmer, of the best Steer.

To the feeder of the best Steer, a premium of 7 guineas, to R. W. Baker, Esq., of Cottesmore, for his Steer under three years old.

To the feeder of the second best ditto, the second premium of 3 guineas, not awarded.

Offered by Stafford O'Brien, Esq.

Class XXIV. To the owner, being a tenant farmer, of the best Cow in milk.

To the owner of the best Cow, a premium of 5 sovs. to Mr. Dawson, of Ingthorpe, for his three year and six months old Heifer.

To the owner of the second best ditto, the second premium of 2 sovs. to Mr. Chapman, of Whitwell, for his four year and seven months old Cow.

Offered by the Right Hon. Lord Barham.

To the tenant occupier of not more than Thirty Acres of Land in the district.

Class XXV. To the owner of the best Cow in milk.

A premium of 5 sovs. to John Heasley, of Burley, for his four year old Cow.

For the second best ditto, a premium of 2 sovs. to Mary Smith, of Langham, for her three years and eleven months old Cow.

Class XXVI. To the owner of the best Heifer.

A premium of 4 sovs. to Ann Woods, of Langham, for her one year and eleven months old Heifer.

For the second best ditto, a premium of 2 sovs. to Mr. Bullamore, of Exton, for his Heifer.

Class XXVII. To the owner of the best Heifer Calf.

A premium of 2 sovs. to William Roe, of Langham, for his Heifer Calf, five weeks and two days old.

To the second best ditto, a premium of 1 sov. to J. Sneath, of Cottesmore, for his Calf, four weeks old.

Class XXVIII. To the owner of the best fat Pig of any weight.

A premium of 2 sovs. to Thomas Hemfries, of Egleton, for his one year and seven months old Pig.

To the second best ditto, a premium of 1 sov. to Edward Holiday, of Exton, for his 44-weeks old Pig.

Offered by Mr. Bosworth.

Class XXIX. To the owner of the best pen of three long-woolled fat Wether Sheep, with restrictions.

A premium of 5 sovs., to Mr. Robert Bosworth, of Greatham, for his three under thirty two months old Wethers.

Also by Mr. Bosworth.

To the exhibitor of the second best aged Ram, in class 20.

A premium of 2 sovs., to Mr. Joseph Tirrell.

Offered by Henry Nevile, Esq.

To the occupier of an allotment (who does not sow more than half a rood of wheat annually) for the best sample of not less than 1 bushel of Wheat.

A premium of 1 sov. to William Wright, of Ridlington.

Also by Mr. Baker.

To the second best, the second premium of ten shillings, to John Barfield, of Ridlington.

Ditto, the third premium of 5 shillings, to Thomas Manton, of Ridlington.

Offered by Sir Thos. Whichcote, Bart.

To the shepherd who shall have raised the greatest number of Lambs.

A premium of 30 shillings, to Robert Manton, shepherd to Mr. N. W. Wortley, of Ridlington.

To the second best; the second premium of 10 shillings, to William Freeman, shepherd to Mr. J. Berridge, of Barrow.

Offered by Augustus Stafford O'Brien, Esq.

To the labourer in husbandry who has brought up the greatest number of Children, and has never received parochial relief, except in sickness, and can produce the best character from his employer.

A premium of 5 sovs. to Benjamin Porter, of Burton Coggles, Lincolnshire.

Offered by E. W. Wilmot, Esq.

To the second best ditto, the second premium of 3 sovs. to Thomas Ward, of Edithweston.

To the third best ditto, the third premium of 2 sovs. to J. Williamson, of Teigh.

To the fourth best ditto, the fourth premium of 1 sov. to Joseph Coleman, of Ketton.

Offered by Mr. C. Smith.

To the labourer who shall have been the feeder of the

best beast in the yard, and can produce a good character from his employer.

A premium of 1 sov. to Lord Exeter's labourer.

Offered by Mr. T. C. Beasley.

To the shepherd who shall have been the feeder of the best pen of Sheep in the yard, and can produce a good character from his employer.

A premium of 1 sov. to Mr. Painter's shepherd.

SWEEPSTAKES.

The following Sweepstakes open to all England.

A sweepstakes of 1 sov., for the best Cow or Heifer in milk, that has calved within nine months of the time of showing.

Mr. R. Smith, of Burley, a Cow shown in extra stock.

A sweepstakes of 1 sov., for the best Heifer under two years.

Mr. R. Smith, of Burley, a Heifer shown in class 22.

A sweepstakes of 1 sov., for the best Heifer under three years.

Mr. Musson, of Coltersworth, a Heifer shown in class 21.

A sweepstakes of 1 sov., for the best pen of 5 Breeding Ewes.

Mr. R. Smith, Burley, for his 5 Ewes.

EXTRA STOCK.

Samuel James Welfitt, Esq., of Pickwell, a seven months old Heifer—Commended.

Mr. R. Smith, Burley, a Cow, has calved two months.—Highly commended.

MR. JACKSON'S PAMPHLET.

SIR,—As I conceive it the duty of every one to make known to their neighbours what they have been taught by experience themselves, I cannot refrain from making a few remarks on the revision of Mr. Jackson's works in your November number; the part to which I allude is on page 326.

Alluding to wheat Mr. Jackson says, "the best criterion for the fitness of grain to be carried home, is to examine the knots or joints of the straw, and if these be perfectly dead and free from juice, the crop may be then gathered with safety, even although it be a little wet with rain."

Now, the revisers say "no such thing," the points to be examined in wheats before carting, "is the grain hard? No matter what state the straw or wheat is in, if the grain be dry, no more is necessary."

Now, I agree with Mr. Jackson in this point, for I have experienced it; I will go no farther than the last harvest to prove it. In my neighbourhood, part of the wheat ripened at ear quicker than the straw, therefore some of the corn was nearly hard before it was cut; bad that been carted as soon as hard, there would have been some burned wheat.

And again, on our land last year, the wheat was very thin, therefore it was very large in the straw, and the knots required a great deal of drying. Many farmers in this vale paid no attention to that, and carted it; the consequence was, their ricks were put on the wrong saddles, and soon, after thatching, were obliged to be uncovered again. I knew one instance of a rack being thatched three times. And not only in ricks; in one or more instances it became necessary to move it in the barn, and even so hot, that the people could not work at it long together; had they, (as I did) waited till the straw, as Mr. J. says, was perfectly dry, (suppose the corn was not quite hard, it would soon become so,) their ricks and barns might have been untouched till the thrashers were ready for them.

Wiltshire, Nov. 21.

A YOUNG FARMER.

AGRICULTURE.

STATISTICS OF FRANCE.

(Continued from page 363, Vol. II.)

RESULTS.

After having assembled together, by the concurrence of more than 100,000 co-operators, about 18,500,000 of numerical terms, expressing agricultural and social facts, it remained to fulfil a task which, though no doubt less vast, was, if possible, still more difficult—that of classing the results of all these elements in the order which offered the greatest connexion of things and ideas, and to exhibit them afterwards in a simple and natural manner, which should facilitate the comprehension of the whole and the different parts without being obliged to submit them to transformations, and to find with rapidity and ease numerous and varied objects of research. If we cannot flatter ourselves to have satisfied all the conditions of this problem, we are at least sure that nothing has been neglected in order to introduce order and perspicuity into this prodigious mass of figures.

To describe the agriculture of France, the first method that offers itself is a very easy division of matter, which consists of entering in a register, under the title of each of the departments, all the numbers which belong to it, and then putting all the departmental statistics one after the other in alphabetical order; but by this distribution only local notions would have been obtained; the knowledge of general facts would have escaped, and it would have been so much the more difficult to trace them, as the alphabetical order would have broken all natural affinity, by bringing together the most distant departments, and separating those which are nearest to each other. The ancient division by provinces would not have been more favourable; and if even it were not totally out of the question, it would have been rejected, for it divided the territory into parts too numerous and unequal, which did not admit of establishing any comparison between them.

In the necessity of grouping together the several departments into regions, in order to preserve the affinities of climate, of soil, of geographical position, and every other analogy existing between adjacent populations, a very broad and simple division has been sought for, at once easy to be understood and remembered, and founded on the natural order of things. The meridian of Paris, which separates France into two parts which are nearly equal, and the 47th parallel, which precisely crosses the centre of the kingdom, have furnished the outline of the division by which the territory is divided into four regions, each containing 21 or 22 departments, and having nearly the same extent and the same population—an essential circumstance, as it enables us to compare together the different parts of the country, either one with the other, or two to two. Thus in the same manner as the agriculture of each region may be compared to that of three other regions separately, we may besides, if we unite two together, compare one half of France with the other half, and show the analogies and the differences which exist between them, whether by opposing the eastern to the western territory, or the departments of the north to the south.

Subdivisions, to be admitted or rejected at will, are given for the consideration of the position.

They bring together, in each region, the departments which border the frontiers or the coasts, and those which belong to the interior of the country. It is important to verify if these dissimilarities in geographical position exercise as great an influence upon agriculture as they do on the population.*

In each of the four great divisions of territory three series of statistical tables reproduce all the agricultural facts under different points of view.

The first series concentrates these facts in each of the departments to which they belong. It is a statistical topography of agriculture.

The second series enumerates all the rural productions. Every species of it is the object of a special table, and the indication of the localities only comes in the second line. Nevertheless, it is here developed in a manner hitherto without example. The production of each sort of cultivation is expressed, not only by department, but even by *arrondissement*, which forms a mass of details hitherto altogether unpublished.

The third series recapitulates the two others at once by departments and by rural productions. It does not, however, confine itself to summing up figures, it distributes them so as to show what are the principal elements of the agricultural economy of a region.

It expresses in a succession of tables the extent of cultivation, the seed that it requires, the quantity of produce yielded, that which is disposable, that which is annually consumed, and finally, the value of each of these classes, either in total or by the hectare.

These three series complete each other. They exercise a mutual control, and indeed it would be difficult if calculations considered under so many aspects should not disclose the errors they might contain. If some of them are exceptionable, it is easy for our observation to find and to seize them amidst these multiplied evolutions, and we may easily detect by what phenomenon the chain of analogies is interrupted.

Besides their common and general aim, these series, which are composed of more than 200 statistical tables, each separately satisfy a particular want of science and of the country. The first is required by the geography of France, the second by agriculture, and the third by political economy, which for a long time past has called loudly for an investigation of its important truths.

The numerical facts of which the statistics of agriculture are formed are again united together in continuous order to each and to all the divisions of the territory, from the *arrondissement*, which does not contain more than 150,000 hectares up to the double region, which comprehends more than 26,000,000.

These facts, summed up as briefly as possible, give for the 43 departments to the east of the meridian of Paris the results which I am about to have the honour of submitting to your Majesty.

The eastern half of France comprehends, in a territory of more than 26,000,000 hectares, a population of nearly 16,000,000 inhabitants. It is divided into 177 *arrondissements*, and 19,000 communes. Its northern part contains nearly twice as many communes as that of the south; its surface is less extensive, but the population is more numerous and dense.

The northern region reckons nearly 12,000,000 hectares and 1,719,000 houses subject to taxation.

* *Statistics of France*, vol. i, p. 232.

which pay in the aggregate 38,500,000*f.* of land-tax.

The region of the south contains 12,500,000 hectares, and 1,443,000 buildings, subject to the land-tax, to which it contributes about 31,500,000*f.*

In the first of these regions the mean sum of the taxation of each hectare is 2*f.* 68*c.*; in the second it is 2*f.* 4*c.* The one pays an average of 3*f.* 93*c.* for each house, and the other 4*f.* 6*c.*

The two regions united, which form something less than the half of continental France, possess 24,500,000 of taxed hectares, and 1,700,000 not taxed; together with 3,163,000 buildings subject to tax, and nearly 46,000 which are exempted.

The mean general quota is 2*f.* 35*c.* for each taxed hectare, and 3*f.* 99*c.* for each house.

These preliminary notions, which make known the territory, the population, and the assessment of the land-tax, will permit us better to appreciate the numerical returns presented by the agricultural statistics of this fine portion of France.

1.—EXTENT OF CULTIVATION.

Out of 26,000,000 hectares 9,600,000, or considerably more than a third, are employed in cultivation. This proportion is raised to one-half, if we add to the land actually cultivated the fallow ground and various plantations comprised under the names of orchards, nurseries, willow-grounds, alder-beds, &c. But if we confine ourselves to enumerate the cultivated parts in the strictest sense, by even rejecting the artificial meadows from the pasturage, there are then only 8,863,000 hectares in cultivation, or 1 in 3. In the northern region we reckon nearly 10 hectares cultivated out of 25, in that of the south 10 in 34.

The total surface of cultivated ground is divided into three principal parts—viz.,

Grain.....	6,538,198 hectares,	three-fourths.
Vines.....	897,423	— one-tenth.
Various cul- tivations.	1,428,081	— one-sixth.

This is more than a hectare in cultivation for every two inhabitants.*

The choice and the variety of cultivations are determined not only by the capabilities of climate and soil, but also by the wants, and above all the habits, of the population.

In the northern region wheat and meslin cover a surface nearly double that which is assigned to them in the southern region; barley and oats have, so to speak, a quadruple extent, but rye and maize are reduced to one-half. The gardens and fields destined for the cultivation of dry vegetables are twice as large, and the cultivation of rapeseed and beetroot of five times the extent. That of hemp is a third above, and the flax-grounds occupy 23 times as much space.

It is true that the influence of climate in the south favours various productions which it repels in the northern region. Thus the mulberry trees

cover 41,000 hectares, the olive trees 117,000, the madder plantations 15,000, the thistle grounds 1,100, &c. The vine finds also in the southern departments a protection which is sometimes refused to it in those of the northern region, and it occupies a surface which is twice as extensive.

2. QUANTITY AND VALUE OF THE SEED.

The mass of grain for seed deducted from the annual produce had not yet been calculated with precision. It is much greater than is commonly imagined. It is formed of 5,500,000 hectolitres of wheat and spelt, and of more than 3,500,000 hectolitres of meslin and rye. The other kinds add to this quantity above 5,000,000; which makes from 14,000,000 to 15,000,000 hectolitres annually employed in the reproduction of grain. This is in abundant years a value of 162,000,000*f.*, while in others it amounts to more than 250,000,000*f.* The quantity of seed required for a hectare does not vary much; it exceeds two hectolitres for the principal grains in the north as well as in the south. It is rather more for barley, and still more for oats. Potatoes require more than 6,000,000 hectolitres at the rate of 12*f.* to the hectare. It is an average expenditure of 13,000,000*f.*

3. QUANTITY AND VALUE OF THE ANNUAL PRODUCE.

No question of agriculture and of political and social economy can equal the importance of that which is here laid down and determined. It concerns the subsistence of the population, the well-being and prosperity of the country.

The conclusions that we are about to establish express the produce of an ordinary year. They increase in abundant years, and contract in years of a bad crop; but it is essential to say, that the diminution of produce is very far from ever being so great as is ordinarily supposed, and that there is no truth in the expressions of a half crop, or of a third of a crop, which we commonly make use of. These are exaggerations which have no foundation any further than as regards a locality, a commune, or a canton, and which there is no example to justify in the case of a region or an extended country.

The average annual entire mass of grain produced in the 43 departments of eastern France form 84,500,000 hectolitres, which the deduction of seed reduces to 70,000,000. The northern region furnishes two-thirds of this vast produce, that of the south produces the other third.

The grain more particularly appropriated to the nourishment of man—that is to say, wheat, spelt, meslin, and rye, average 52,000,000 hectolitres, and the others, barley, oats, and maize, about 31,000,000.

The 70,000,000 of disposable hectolitres allow for each inhabitant 4½ hectolitres for his nourishment and that of his domestic animals. The different kinds especially destined for his subsistence furnish him with much beyond 2½ hectolitres, of which wheat forms two-thirds, and meslin and rye the remainder. In abundant years the value of this subsistence does not exceed 786,000,000*f.*; in less favourable seasons, it is worth 1,200,000,000*f.* This is a difference of from 50 to 75 francs in the expenditure of each individual.

The grain, which constituted formerly the whole subsistence of the population, became progressively of less absolute necessity, since they have had for auxiliaries the cultivation of the potato and pulse

* That the reader may completely understand the report we have here translated, and to enable him to reduce the different French measures and values and quantities into English, we have consulted that excellent and highly scientific work, *Dr. Kelly's Cambist*, and we there find that—the French land measure, the hectare, is equal to 2,47117 English acres; the hectolitre is equal to 2,7513 bushels imperial measure; the kilogramme is equal to 2,20486 lb. avoirdupois; the sere is a cubit metre, and is equal to 35.317 cubic feet English.

and the produce of the gardens. The care bestowed on these productions now furnish every year a mass of subsistence which is truly prodigious. In East France 55,000,000 hectolitres of potatoes are gathered annually, or three and a half for each inhabitant. The cultivation in the gross of pulse furnishes 2,000,000 hectolitres, and the value, at a rough guess, of garden produce amounts to more than 72,000,000f.

In this half of the kingdom the vines, which occupy nearly 900,000 hectares, yield above 20,000,000 hectolitres of wine, estimated at 231,500,000f., and by including the brandies to more than 263,000,000f. In the north the hectolitre of wine is worth 29f., and only 18 in the south. There are annually made 3,360,000 hectolitres of beer, and 461,000 of cider of all kinds. Their united value does not exceed 52,000,000f.

The beetroot occupies less than 37,000 hectares, which yield about 12,000,000 hectolitres, estimated at 20,000,000f.

The rapeseed covers at least 116,000 hectares, which give 1,500,000 hectolitres of seed. The gross revenue of the hectare amounts to nearly 300f., and the total value of the crop to 35,000,000f.

The textile plants cover more than 100,000 hectares. The flax yields 12,000,000 kilogrammes of produce, and the hemp 33,500,000; including the seed, they give a crop estimated at 64,500,000f.

The mulberry trees, of which the culture has received too recent an extension to be correctly appreciated, yield a gross revenue, per hectare, which exceeds 1,000f., and the total product of the values of which they are the first source is not below 42,000,000f.

Estimated according to the low prices of a year of average or abundance, the produce amounts, on the principle of the most minute estimation, to the undermentioned sums:—

	Francs.
Grain.....	950,000,000
Vines.....	264,000,000
Beer and cider.....	52,000,000
Various cultivations	430,000,000

Total 1,696,000,000

But at the time of high prices grain attains a value greater by one-half, and the total produce considerably exceeds 2,000,000,000f.

4.—CONSUMPTION.

It is very difficult to determine the quantity of agricultural produce consumed, because there is the perpetual supply of an arrondissement, of a department, of a region, to another, and that the truth of the figures is exposed to be falsified, on the one hand by omissions, and on the other by being twice employed. We consequently offer the investigation of this important subject as approximations; but we may venture to affirm that there have not been any up to this time which have been made from such numerous and complete materials. An unexpected guarantee of their accuracy is, that their figures are in accordance with those of the production, though they have each a different origin, and that they are derived from immense calculations made separately, and without any foreknowledge of the agreement of their results.

When we have deducted the seed, there remains in the 43 departments of East France more than 70,000,000 hectolitres of grain of all kinds, disposable for consumption and exportation. The

quantity annually consumed amounts to 68,000,000 hectolitres. Thus, the average produce provides for the sowing of the land, the wants of the population and of domestic animals, and gives an excess of a 34th. The departments of the north produce more than they consume. The contrary is the case in those of the south.

We cannot compare with exactitude each sort of disposable grain with the quantity of it which is consumed, because, besides the meslin reaped on the spot, it is made at pleasure in some departments by a mixture of wheat and rye in variable properties. In total, the grain in East France appropriated to the nourishment of man leaves a difference of less than 1,300,000 hectolitres between the disposable quantities and those consumed. This difference, which is not equal to a 52d part of the consumption, is the sum of the necessary importations which take place in that part of France, either from the western departments or foreign countries, by the arrivals at the port of Marseilles. To counterbalance this there is an excess of 3,500,000 hectolitres produced above the consumption by the cultivation of barley, oats, and malze. It is principally the oats of the north which give this excess.

These calculations show the profound error of the assertions of common people, and even of some economists, who suppose that a crop furnishes sufficient for the consumption of two or three years; that the produce is too great; that it is necessary to prohibit the importation of foreign grain, and other opinions conceived *a priori* and totally in opposition to known facts.

They explain how a slight deficiency in the crop rapidly and forcibly affects the price of grain, and furnishes plausible or specious motives to raise it, when nevertheless, there is not the slightest foundation to dread a scarcity.

They finally establish the necessity of maintaining with vigour the free circulation of grain in the interior, and by facilitating this object by cheaper, more rapid, and more extended means of communication and transport.

The consumption of each inhabitant is nearly in the following proportions, taking the departments of East France one with another:—

	Hect.	Hect.
Wheat	1.70	} 2.68
Meslin.....	0.28*	
Rye.....	0.70	
Oats, Barley, Maize, Buckwheat..		0.32
Potatoes		2.83
Pulse		0.11
Meat.....		Kil. 20.53
		Hect.
Wine		0.75
Beer		0.20
Cider		0.03

The consumption of the north differs materially

* The grain here spoken of, meslin, is a mixture of wheat and rye. The practice was formerly very general in France of sowing these two species of grain mixed together in the same ground; but from the circumstance that the rye generally comes sooner to maturity than the wheat, the practice in some degree is abandoned, and a great part of the meslin now consumed arises from the mixture of wheat and rye after their respective production. This mixture is in any proportion that may suit the taste and habits of the consumer. The household bread made of meslin is exceedingly nutritious and wholesome.

in all respects from that of the south ; it is greater in wheat, in meslin, in potatoes, in pulse, in meat, and in beer ; it is less in rye and in wine.

5. PASTURAGE.

East France possesses 16,500,000 hectares in pasturage of all kinds : one quarter only in natural and artificial meadows, and the remaining three-quarters in pasture, sheep-walks, and fallow-ground.

The departments of the northern region contain 1,600,000 hectares of natural and artificial meadow land, yielding a produce of 200,000,000*fr.* These of the south have only 1,000,000, furnishing a value of 126,000,000*fr.* The fallow grounds are of the same extent, and of an equal produce, in both regions. It is different as respects the sheep-walks ; their extent is scarcely 800,000 hectares in the north ; in the south it is from four to five times as great. Here the value of their produce is less than half. In total, the whole pasture-ground yields annually a gross revenue of 412,000,000*fr.*—that is to say, 233,000,000*fr.* in the north, and 179,600,000*fr.* in the south. The improvement of this essential portion of agricultural domain is an object of the highest interest, and with which it is necessary that we should be constantly occupied.

6.—WOODS AND FORESTS.

The 43 departments to the east of this meridian of Paris contain nearly 5,00,000 hectares of wood, of which three fifths are in the north, and two in the south. Of these two categories, the first furnishes nearly six stères the hectare, whilst the second only yields two and a half. Thus the annual revenue derived from the woods and forests amounts in the northern region to 106,000,000*fr.*, instead of 31,000,000*fr.*, which is yielded by the southern region. The whole of the forests of East France produce only 137,000,000*fr.* annually, which must be attributed to the rights and customs to which a great many of them are subject, and to the state of dilapidation into which for a long time past those have fallen which are in the neighbourhood of concentrated populations.

7.—EXTENT AND VALUE OF AGRICULTURAL DOMAIN.

The administration of the state and the economists have had recourse, during a century and a half, to every possible method of reduction, in order to estimate, by attentive observation, the value of the gross produce of the agriculture of France : but it was not possible to arrive at this essential knowledge except by means of a detailed inventory of rural produce.

The half of this difficult task having been fulfilled in the work that I have now the honour of presenting to your Majesty, we may already draw from it exact and comprehensive notions of the extent and value of the agricultural domain of half of the kingdom.

East France being divided into two regions, we find, that in calculating the extent of territory of one and the other, that the first, that of the north, contains a little less than 13,000,000 hectares ; and that the second, that of the south, has a somewhat larger surface.

Of this extent of 26,000,000 hectares, the cultivations of all kinds, joined to nursery grounds, orchards, willow plantations, plots of chestnut trees, and other plantations, occupy 9,000,000, or rather more than a third, the pasture two-fifths, and the woods more than a fifth. A 26th part of the whole surface, or more than 1,000,000 hectares, is set apart for social wants, and is occupied by

towns and villages, churches, canals, public roads, and watercourses.

Though the extent of agricultural domain may be the same in the two regions, the distribution of it differs considerably. In the north the cultivated portion is greater by 1,200,000 hectares ; the orchards, nurseries, and other plantations exceed by more than half, and the woods and forests in the same proportion ; but, on the contrary, the natural pasture, the heaths, and the fallow ground, occupy but 4,000,000 hectares, instead of 6,000,000, as in the southern departments.

The gross revenue of the annual agricultural produce amounts in the northern region to 1,300,000,000*fr.*, and in that of the south to 945,000,000*fr.* The difference is 365,000,000*fr.* or more than a sixth of the total value, which amounts to 2,241,000,000*fr.*

This amount produced by 43 united departments ought to be increased—

1. By the produce of the nurseries, willow and alder grounds, and that of the orchards which do not contribute to the making of cider.

2. By the value of different productions of agricultural industry mentioned elsewhere.

3. By the overplus value of grain, in years when the prices have been higher than those existing when the materials of this work were collected.

In taking no account of the two first articles, which require special investigation, we may at least estimate the overplus value of grain at 300,000,000*fr.* or 400,000,000*fr.* ; which brings the minimum of the gross value of agricultural produce in the east part of France to the sum of more than 2,500,000,000*fr.*

8.—NUMBER AND VALUE OF DOMESTIC ANIMALS.

The principal species of domestic animals belonging exclusively to agriculture, form an immense aggregate, which in East France amounts to nearly 25,000,000 heads. The cattle form less than a fifth, the flocks three-fifths, the swine one-tenth, the horses a twentieth, &c.

The departments of the north have considerably more heads of cattle and swine, and from three to four times as many horses, as those of the south ; they have fewer sheep, goats, mules, and asses.

These animals contribute to the agriculture of this part of France a capital of 877,000,000*fr.*—that is to say, 371,000,000*fr.* in cattle, 157,000,000*fr.* in sheep, 87,000,000*fr.* in swine, 200,000,000*fr.* in horses, 47,000,000*fr.* in mules, &c.

The mean revenue of each animal is generally higher in the north, where the different species have been improved. The total revenue amounts to 350,000,000*fr.*, of which the cattle produce 137,000,000*fr.*, the sheep 56,000,000*fr.*, the swine 40,000,000*fr.*, the horses 93,000,000*fr.*, the mules from 15,000,000*fr.* to 16,000,000*fr.*

9.—NUMBER OF ANIMALS SLAUGHTERED FOR CONSUMPTION.

There is annually taken for this purpose two oxen out of seven, one cow out of seven, and a greater quantity of calves than that which is reserved for bringing up. Out of 15,000,000 of sheep and lambs, one-fifth is slaughtered. As to swine, there are nearly as many killed every year as are fed.

In total, 7,000,000 of animals are required for the substance of the 16,000,000 of inhabitants forming the population of East France.

10.—QUANTITY AND VALUE OF THE MEAT CONSUMED.

Calculated carefully by communes, the meat

consumed forms a quantity of 327,000,000 kilogrammes, estimated at 260,000,000*fr.* The cattle furnish two-fifths of this quantity, the sheep one-eighth, the swine nearly half.

The departments of the north furnish nearly twice as many oxen, cows, and calves as those of the south, and of swine half as many more; but their consumption of sheep is only one-third of that of the southern departments.

The domestic animals add to the agricultural riches of East France:—

1. An annual revenue, amounting to... 350,000,000 *fr.*
2. A consumption of meat estimated at 260,000,000

Total..... 610,000,000

Thus from that half of the territory which lies to the east of the meridian of Paris, the public resources derive annually from agriculture a gross revenue composed of—

1. *Minimum* value of rural produce... 2,500,000,000 *fr.*
2. Animal produce valued at..... 610,000,000

Total of gross revenue derived from agriculture..... 3,110,000,000

It is probable that the articles omitted would bring this sum to 3,500,000,000*fr.*, but this increase can only be conjectured.

This vast work contains so great a number of numerical facts of which the knowledge is essential to the prosperity of the kingdom, that I have not been able, *Sire*, to exhibit them with the conscientiousness I should have wished. I trust that your Majesty will forgive me, in consideration of the novelty and the importance of the objects embraced by this report, and that you will receive the results which it comprehends as one of the most useful applications of science to the first interests of the state.

I am, with respect, *Sire*, your Majesty's very humble, devoted, and faithful servant,

AL. GOVIN.

The Secretary Minister of State for the Department of Agriculture and Commerce.
Paris, May 30.

A PECULIAR AFFECTION IN SHEEP,

IMMEDIATELY FOLLOWING SHEARING.

BY MR. J. GUTTERIDGE, V.S., OF ROSS.

In June last, my attention was directed to the sheep on three farms in my neighbourhood. There were eleven ewes on one of them, seven on another, and fifteen on the third; all of them affected with a very peculiar disease, and which the proprietors were naturally fearful would spread throughout the rest of the flock. It appeared either in the night after they were shorn, or in the course of the following day.

The first symptom was usually great swelling of the hind legs, the udders, and the under part of the abdomen; giving, as some of the shepherds called it, the appearance of a boot, blackened and polished. Some of the ewes were not able to stand, and several died before the disease was recognized.

I had them brought under a warm shed or into a barn, and gave to each a gentle dose of aperient medicine, and had them well fomented with

warm water as far as the swelling extended. This favoured the process of suppuration, and as soon as the enlargement pointed at any particular spot, I opened it with my lancet, and continued the fomentation, adding, in some cases, a little chloride of lime to the water, for the ulcer was very foul and fetid. I administered inwardly mild tonics, and allowed my patients some ground oats, with cut hay, clover, &c.

All this was caused by the unthinking shepherd turning them out immediately after they were shorn. At an early period I will send you the full particulars, for I consider the case a very interesting one.—*Veterinarian.*

ON THE DURABILITY OF NITRATE OF SODA.

TO THE EDITOR OF THE MARK LANE EXPRESS:

SIR,—I observe in your last paper, an inquiry repeated by Mr. Symonds, as to the durability of Cubic-petre, as a fertilizer, which has been recently made on several occasions. There is no doubt but that its effects extend beyond the first year of its application; this is certainly the case with saltpetre—thus Mr. Kimberley, of Trolsworth, when he used it upon his clover land, found that its effects were equally great upon the following crop of wheat.—*Journ. Roy. Ag. Soc.* vol. i. p. 276. —Mr. Wilsher experienced a similar result.—*My Essay on Saltpetre*, p. 30. Mr. L-e, who successfully used it for barley, found it improved in an equal ratio the following crop of clover.—*Edin. Quar. Jour. of Ag.* vol. i. p. 302. Mr. Oakley, of Preston, in Herefordshire, says, "it survives to the succeeding crop."—*Essay on Saltpetre*, p. 38. It is a very erroneous conclusion, that saline manures are speedily washed out of the soil by the rain, for I ascertained some years since, by very careful experiments with common salt, that at the expiration of twelve months, sixty per cent. of the quantity originally applied remained in the soil.—*Essay on Common Salt*, p. 156.

I am glad to find that the use of Cubic-petre is extending so successfully. In some recent trials on the estate of his grace the Duke of Norfolk, detailed by Mr. Anderson of Oakley, the following results were obtained (for an account of which I am indebted to Mr. E. Purser, of New Bridge-street, an extensive dealer in these powerful salts):—

One hundred and fifty pounds' weight of nitrate of soda per acre, were sown on a portion of a field of clover in April, 1840; the remaining part of the field was not manured. The clover was cut on the 6th of July; on the 11th, when in a good state to cart, the clover was weighed.

	Ton. cwt. qr. lb.				£ s. d.			
Produce per acre, where the Nitrate of soda was sown	3	1	1	20	value	4 <i>l.</i>	per ton	12 5 9
Produce per acre, where the Nitrate of Soda was not sown	2	4	1	24	value	4 <i>l.</i>	per ton	8 17 10
Difference in quantity per acre	0	16	3	24	In value	.....		3 7 11
Cost of Nitrate of Soda per acre, and sowing	.....							1 9 0
Profit, per acre, from the use of the Cubic Petre	.....							1 18 11

The benefit derived from thus increasing the produce of clover will hardly ever terminate with the first crop. It is a well-known fact amongst the Essex farmers, that by whatever means they increase the produce of clover, the yield of the following crop of wheat will be in a similar ratio improved. I am, Sir, yours, faithfully,

CUTHBERT W. JOHNSON.

14, Gray's Inn Square, Dec. 3, 1840.

ON SOOT.

Soot (soot, soot, soote, Sax.; soot, soet, Dut.; suye, Fr.) is a clammy, earthy, volatile matter, arising with the smoke by the action of fire, or smoke itself embodied and condensed on the sides of the chimney, or a collection of substances formed by the flame of combustible bodies. Though once volatile, it cannot again be resolved into vapour. Distilled with a strong heat, it yields volatile alkali and empyreumatic oil, with a quantity of fixed matter remaining at the bottom of the vessel. When burnt in an open fire, it flames with a thick smoke, and produces other soot, used in making sal-ammoniac, and likewise as a manure. Soot has escaped perfect combustion from insufficient contact with vital air, and consequently may be burned again. The black and brownish colour arises from an oil that is burnt and half reduced to a state of coal, and the different qualities and appearances arise from the nature of the inflammable substances, and the mode in which they are burnt. It contains a black carbonaceous matter, with carbonated ammonia, and emits a strong pungent smell from the touch of quick lime. It affords a brown extractive matter of a bitter taste, and some ammoniacal salts, and also an empyreumatic oil; but its great basis is charcoal, in a state capable of being rendered soluble by the action of oxygen and water. A slight portion of fibrous matter is volatilized by the fire, and again occurs in the soot.

The soot produced by the combustion of coals is generally reckoned better in quality than that of wood or peat; and soot that is got from kitchen chimneys, where it is impregnated with the effluvia of the cooked victuals, has been reckoned preferable to any other; but experience has not in every case established a marked and permanent difference. It has been long used as a manure in the way of top-dressing all crops, culmiferous or green, and on grass lands, and on turnips soon after brairding, as a preventive of the fly. The season of application generally recommended is in the spring months of March and April, and if possible during calm and mild showery weather; but an application on wheat lands in autumn, when the wheat was sown, and ploughed in with the seed, was very successful; and the use of soot on grass lands in October was equally beneficial with the spring application, in cases of my own personal superintendence. The quantity used on an acre varies in different statements from 20 to 100 bushels, the average being 40 to 60, and the medium price, including the sowing by the seller, may be stated at 6d. per bushel, the sowing separately being charged 1d. Twenty bushels an acre are scattered by hand on turnips to prevent the fly; on wheats that look sickly, or are infested with grub, soot will work a great change in restoring a green and healthy colour, and in causing much tillering from the roots. On clovers, tares, and on all young grasses, and on grass lands, the effects will be equally beneficial; and also on young barleys, and on all spring crops. It may also be harrowed in with the seed of any crop in the spring on well pulverized land; but as moisture is necessary to its operation, it may sooner obtain the assistance of that element by lying on the surface as a top-dressing.

Quantities of soot can only be got near large towns and villages, where it is bought and carried to considerable distances, as few substances are more certain in effect as a manure. The spreading of it on the land requires a gentle wind to carry it from the sower, and to scatter it evenly. A four-horse waggon carries 160 bushels, and may be driven across the wind, and by the sower walking backwards over a

space, the soot will be carried from the horses and the sowers, to whom the caustic qualities are often very inconvenient. Twenty bushels of soot have been reckoned equal to fifty of the ashes of coal, wood, or peat; it never fails in producing good crops, but as may be readily concluded from its nature and composition, it lasts only for one year.

J. D.

THE ROYAL AGRICULTURAL SOCIETY.

SIR,—I have seen with the deepest regret an announcement that the English Agricultural Society, for the future, do not intend to give any prize to encourage the breeding of hunters, carriage-horses, and hacks. What can be the reason for it? Are these descriptions of horses beneath the attention of the council of the society, whilst pigs and sheep are objects worthy of their regard? Is it of no concern whether the farmer can obtain a good hack to carry him through many a long day; whether the gentleman can get a good hunter to carry him in the field; or the military man a good charger, to bear him safely through the field of blood and carnage: whether the breeder can produce an animal which will repay him for the four or five years he is obliged to keep it, or one that will not pay him after the same extent of time for one year's support?

England has been pre-eminent for horses. Is it to be so no longer? Is no inducement to be given by the chief agricultural society of our island, to farmers zealously to continue to improve their breed of nags?

Are foreigners to be permitted, year after year, to convey from our shores our best blood, and no efforts to be made to replenish those we have lost? Should another continental war occur, how will our cavalry appear, once above all competition? will they be so in future?

I consider the proposed withdrawal of the prize as a proceeding most inimical to the best welfare of the society, and if persisted in, as calculated to cause the withdrawal of many amongst its members, and array against it a great number of farmers in the northern and eastern counties, where the descriptions of horses I refer to are largely bred. To withdraw the premium this year seems to me to be a very ungracious act, as the show takes place near to Yorkshire, from which celebrated county we might reasonably expect much superior breeding stock would be sent, producing a far more splendid exhibition in this particular department than either the one at Oxford or Cambridge.

But it appears the council of the society have decreed otherwise. Farmers of England, members of the English Agricultural Society, is it thus to be? I call upon you to rise as one man, forward remonstrance upon remonstrance to the society; besiege its very doors until the voice of reason, interest, and a regard for your country's future weal shall prevail.

AN ENGLISHMAN.

Tollshunt Knights.

THE FARMER'S ALMANACK: RIDGWAY.—A very useful manual for agriculturists. An immense quantity of information in a very small compass—in fact, nothing relating to the real interest of the farmer has been omitted.—*Sunday Times*.

NITRATE OF SODA.

Capt. Alexander has published, at the request of the East Suffolk Agricultural Association, the Essay on the soils of that district, for which he obtained Mr. Long's prize. It contains much that is valuable, and from it we select the following extracts, which particularly appertain to some of the soils of this county.

"The employment of nitrate of potash (saltpetre) and nitrate of soda (cubic petre) have of late been used to a great extent, and there appears to be no doubt of the beneficial effects; and it forms a fair presumption, that the fertilizing power of our compost heaps may be attributable to the quantity of calcareous nitrate, formed by a due admixture of earth and manure in our usual mode of forming composts.

"In Prussia, the nitrous earth is prepared so much after the manner in which we form compost heaps of manure, that I must be excused for transcribing the method as I find it in the *Encyclopædia Londinensis*. 'Five measures or parts of black vegetable earth, or the earth of subterranean caverns, are mixed with one measure of wood or vegetable ashes, and some straw; these articles beat up with water of dunghills, or draining of yards and sewers, are formed into walls or beds, twenty feet long and three feet wide below, two feet wide at the top, and six feet high; they are covered with light straw, and moistened from time to time, and at the end of the year are fit for washing.'

"In Malta they employ the most porous calcareous earth, mixed with straw; a layer of this earth and a layer of dung alternately follow each other, until they are six feet high; this is sprinkled with water from dunghills, and occasionally turned, it then becomes fit for washing in three years; during the first year the beds are sprinkled over with slaked lime every month.

"In Sweden, a layer of meadow turf, ashes and lime, and the draining of sewers, stables, &c. are sprinkled over in a similar manner; then a layer of straw is put on, and these layers are continued above six feet. These beds are defended from rain, and occasionally moistened with the drainings of stables, &c.; they then begin to yield nitre at the end of a year, and continue to yield it for ten years; it is swept off every eight days, and after each sweeping is watered as before; the remaining matter at the end of ten years forms an excellent manure.

"In the canton of Appenzel, they take advantage of the situation of their stables, which are built on the sides of mountains, to have a trench under the floor; into this trench they cast porous earth, and emptying it once in three years, thus obtain a ton of saltpetre from an ordinary stable.

"Whoever compares these and similar modes of obtaining nitre, with our common practice of raising compost heaps, will be struck with the coincidence, that both appear to be managed for a like purpose; and if so, that in the proportion in which we raise nitrate of potash, (saltpetre,) and nitrate of soda, (cubic petre) so is the value of our compost heaps, more or less; but the inference to be drawn is, that we may pursue the system with more accurate results by a slight attention and observation. First then it would appear, that in collecting our calcareous earth, whether it be chalk, crag, marl, or clay, it should if possible be chosen from the north face of the pit, and where it has been some time exposed; that it should be mixed in much larger proportion to the manure than is generally practised; that it should lay in alternate layers, rising

six feet high; that it should be occasionally watered with the water of dunghills, drainings of yards, or where this cannot be obtained, with salt and water, slaked lime being occasionally added, and that these heaps should have one whole summer or year to propagate nitre. We are also instructed in the use of mortar rubbish, gypsum, &c.

"There is a practice among the smaller farmers, who keep a few young stock and cows in heavy land, of forming their compost heaps from the out-hollowings of ditches, with small proportions of wet straw from their cattle yards, in which no great quantity of manure from the cattle exists; and I have often been surprised that sufficient effect could be produced by so small an admixture of manure, among so much apparently inert matter; but when we consider that this assemblage of materials from the ditches comprises the facings of banks, which have been shaded, and the dead leaves of the fences, and water washing from the surface soils, I am inclined to attribute the good effects to the production of nitre by these manure heaps, and to suggest that if they could be allowed more time to collect nitrogen from the atmosphere, they would be more valuable.

"It would then appear advisable in forming manure heaps, to place them at the north side of a barn, near to some tank into which the drainings of the yard are collected, from whence they may be watered; and to keep them covered with light straw, and in other respects to imitate the artificial formation of nitre beds above described, and especially to allow the heaps a whole year; this may be afforded by allowing them to have so much calcareous and clayey compost, as to form two heaps from the same quantity of manure as under common circumstances would be appropriated to one, and I am inclined to believe that one load would prove as valuable as two. I am aware that the advocates for using raw manure will look upon my recommendation as erroneous, and militating against their views. I will come to this subject presently, and ask for a suspension of judgment; at the same time admit that rather than lose the virtues of the raw manure, which I have seen too frequently lavishly expended in evaporation, and by drainage, that under these circumstances the advocates for using it have much to say in favour of the practice; but when compost heaps are formed with due attention to the above observations, it will no doubt lead to beneficial results.

"The result of my observations upon chalk is, that it is valuable as an addition to sand, mixed lands, and loam, gravel, London clay, and most especially to peat, or fibrous deposit; and as such soils are generally deficient in this constituent of all fertile lands, an addition of this to the above enumerated ones affords very immediate and beneficial effects; but in all the soils and strata compounded of the three, chalk, London clay, and marine deposit, a sufficiency already exists in the compound, and therefore on these soils its value is chiefly to be estimated by its combination with other substances, so as to form chemical affinities, and produce other compounds.

"Where soils are composed of chalk without a due admixture of siliceous matter, the epidermis or outer coat of the straw is not so hard as it should be. On these lands mildew is prevalent, while near the sea coast where the marine deposit of sand forms the principal ingredient, mildew is rarely to be met with.

"I shall be understood better if I explain the nature of mildew. 'Mildew' is a parasitical plant of

diminutive growth, which has no power of growing except by the supply of the sap from wheat, straw, or other substances exuding from vegetables; the seeds of this plant are floating in the air generally in the summer time; it is supposed by some to be fostered and brought into maturity by the barberry bush, and it is probable that this plant may afford it support without itself suffering perceptibly, and seeding, may supply seed to other plants, and on this account mildew may be first discovered in the neighbourhood of the barberry; but unless the predisposing cause existed in the stalk of the wheat, the mildew could not by possibility take effect.

"Now the predisposing cause is in a great measure in the soil, and thus we find some districts much more liable to its attack than others. When the soil is very deficient in silex, or not having that due mixture which enables the roots to absorb sufficient silex to form a hard epidermis; the object is to add such substances as will afford the power. I therefore recommend sand, red sand which contains oxide of iron is the best, but drift sand and road sand, the harder particles of cinder dirt, refuse from the soap boilers, barilla and salt, will be the most efficacious remedy. A high state of cultivation will not improve these lands so much as a supply of these component parts of a hard epidermis to the straw; for these lands are generally in themselves good staple lands, and if properly managed, highly productive in wheat and beans.

"I have dwelt thus long upon the chalk formation, because it is one which forms the greatest variety in its chemical compounds, and exists in the greatest abundance".

The Essay is within the compass of every farmer, and well worthy their attention.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I regret very much that my former letter in reply to Mr. Bates should have contained any expression which that gentleman has deemed it requisite to controvert, "lest it might pass for an *undoubted truth*," because, as I before observed, the bad state of my health renders writing a task, to me, of pain and difficulty; however, as Mr. B. has volunteered to prove my ignorance on the subject in question by "*incontrovertible facts*," I feel bound to give the public the chance of benefitting by his superior knowledge. I fear that to do so I shall be compelled to trespass at some length on your columns, and draw largely on the patience of your readers.

Having stated in my former letter the result of the crosses I had seen made, *both ways*, between the short-horns and Herefords, I think Mr. Bates (if he has it in his power) would have acted wisely in disproving that statement. The matter would then have been settled; but all that can be gleaned from what Mr. B. has told us respecting the cross made by Mr. Charge is, that Mr. Charge having put one of his short-horned bulls to a Kyloe cow, bred in this way a better steer for money-paying purposes than another steer proved to be, bred from the same bull and one of his pure bred short-horned cows, "excellent" as he too was of his kind. But how does this affect my statement? The cross, as far as we know from Mr. Bates, was only made *one way*. To have convicted me of error, it would have been requisite to

prove that by putting the Kyloe bull to the short-horned cow, the produce was inferior to that of the opposite cross. Now it so happens, that some years ago I saw the cross made by a very skilful person, *both ways*, between the Kyloes and the Herefords, and the produce proved to be greatly in favour of the small male and the large female. I have also witnessed similar trials made between the Devons and the short-horns, and many years since to a great extent between the Herefords and the long-horned Disbley, or afterwards (so called) Hollwright breed of cattle; and in *every instance* the crosses or trials thus made proved to be greatly in favour of the small bull and the large cow. This, probably, induced me to express my own conviction on the subject with more confidence than prudence—though, as far as that goes, I am more than borne out by Mr. Bates in the following sentence, which I take from his letter to me.

"But I consider, and have for above forty years been convinced, that the very best short-horns, which are only a few, are capable of improving *all other breeds of cattle in the United Kingdom*."

Now taking this sentence with the context, I am constrained to infer, and indeed the whole tenor of Mr. Bates's two letters authorizes the inference, that Mr. Bates considers the best short-horn bulls nearer to perfection, in form, quality of flesh, &c., than the bulls of any other breed. Unless this be his opinion, I am at a loss to imagine how he has arrived at the conclusion "*that they are capable of improving all other breeds of cattle*." As I believe it is an admitted fact with breeders, that the progeny of all cross-bred animals partakes largely of the good or bad qualities possessed by the male—and this brings me to that unfortunate expression of mine which, it appears, should have been used in a qualified sense, "why, upon the true principles of breeding, this was likely to be the case"—I will endeavour to describe, as briefly as I can, what I meant by the "true principles of breeding." I consider the subject one of vast importance, and though not altogether above my comprehension, yet demanding for its illustration far greater powers of language than I possess, and a much wider field of discussion than the columns of a newspaper.

I will assume that the different species of cattle, like all other of God's creatures, were created perfect, their forms, constitutions, coverings, &c., being those best adapted to the localities they were destined to inhabit, and the purposes nature intended them to fulfil.

Arriving, myself, at these conclusions early in life, I was led to seek out (for the purpose of founding stock upon) animals possessing that standard of form based on the principle of *utility* in its widest sense, and therefore the most in accordance with my own views on the subject. I perceived that all animals in a wild state,—as, for instance, the deer, the Arab horse, the fox, hares, rabbits, rats, mice, &c., still retained the forms and properties originally assigned to them. This led me to examine minutely the various forms of the horses, cattle, sheep, pigs, &c., that came within my observation; in doing which I could not find *one perfect animal*, according to the notions I entertained of what they were originally; but among cattle the Highland Scot approached more nearly than any other animal to the standard of form which I considered the true one. This decided me on adopting them as my model, aided by a conviction on my mind that this race of cattle had remained longer than any other in the place where

they were first located, and more free from admixture with other breeds. Residing then, as I have continued to reside, in one of the midland counties, Worcestershire, which differs so widely from the mountains of Scotland, both in soil and climate, I was desirous to possess myself of a breed of cattle on a somewhat larger scale than the Scotch Kyloes, yet having the same symmetrical loggy forms, with similar coat and texture of flesh; in the prosecution of my object I carefully inspected all the different herds of cattle, standing highest in repute, and after much time and trouble, I at length found a herd in the possession of the late Mr. R. Tomkins, of Wellington Court, near Hereford, partaking to a greater extent of the good properties of my model, than any others I had met with. I at once purchased of their owner four heifers and a bull.

These cattle were on a smaller scale than other herds I saw in Herefordshire, although more in accordance with my notions of symmetry; and I then had an idea that by judicious admixture of the two kinds, I should be able to improve both. I therefore bought some of the larger kind, tried the experiment *both ways*, and found to my cost, that I was much less clever than I had fancied myself; to prevent further mischief however, I lost no time in getting rid of every bull, cow, and heifer I had of the mixed breed. Having failed in realizing the good I had anticipated from these crosses, and having witnessed similar failures both in cattle and sheep, with the stock of other breeders, I was led to seek for the cause of such failures; in doing which, I discovered that though man possesses the power to mould inanimate matter to his will, he has no such power by the commingling of blood or otherwise, to alter the principal form or properties of matter possessing vitality, either animal or vegetable, without destroying, in a great degree, its pristine beauty and utility. That although he has the power to misshape form, and even to destroy life—he is powerless to destroy either one or the other. Providence, for wise reasons no doubt, has withheld from him any such capability. Having arrived at the foregoing conclusions, I bought from Mr. Tomkins, a considerable number of his cows and heifers, and two more bulls; being then determined to stick entirely to that sort, and if possible to improve them.

To make them perfect, according to my own notions, I, even then, considered far beyond my skill, and so I have found it. I have kept the blood of these cattle unadulterated for forty years, and Mr. Tomkins assured me, that he had bred the whole of his stock from two heifers and a bull, selected by himself, early in life, without any cross of blood. My herd of cattle has, therefore, been bred "*in and in*," as it is termed, for upwards of eighty years; and by far the greater part of it in a direct line, on both sides from one cow, now in calf for the twentieth time. I have bred three calves from her, by two of her sons, one of which is now the largest cow I have, possessing also the best form and constitution; the other two were bulls, and proved of great value; thus showing indisputably that it is *not* requisite to mix the blood of the different kinds of the same race of animals, in order to keep them from degenerating.

This, being the opinion I held very many years ago, induced me to keep to one family or sort. My conviction on the subject I recently recorded in your columns, and in those of other journals, and also in circulars which have been freely

distributed in most of the English counties; and the sequel has satisfied me that public opinion is pretty much in accordance with my own.

Mr. Bates will perceive from the foregoing remarks, that I consider there exists, with regard to animals, a fixed principle, which should be as nearly as possible adhered to by those who breed them. I consider that the bulls belonging to the smaller breeds of cattle, possess, in general, much better forms, and other desirable properties, than any bulls I have seen belonging to the larger kinds. This was my reason for saying "why, on the true principles of breeding," the result of a cross was likely to be in favour of the small male, &c. My opinion on this matter is partly corroborated by a writer who signs himself *Agriicola*, in your paper of the 22nd of last month. As I intend this to be the last communication I shall trouble you with on the subject of Mr. Bates's letters, I am induced, before I conclude, to take another quotation from his letter to me, viz.: "In my opinion, the short-horns would prove an invaluable cross with the best Herefords," &c. &c.

I will here state, for the information of Mr. Bates, the result of a trial which I saw made between the two breeds, some fifteen years ago. At the time I allude to, Sir C. Morgan, Bart., offered a prize cup to the person who should exhibit the best yearling heifer of any breed, at the Tredegar Cattle Show, and, among other competitors for this prize, was the Rev. H. Berry, of short-horned notoriety, and Mr. White, then living at Upleadon Court, near Gloucester, equally celebrated as a breeder of Herefords. The prize was awarded to Mr. Berry; not however, to the entire satisfaction of Mr. White that it was given to the best animal; consequently a bet of 20 guineas was made between him and Mr. Berry, on the following conditions, viz.:—that the *then* weight of each heifer should be ascertained and booked; after which, each should be kept by its respective owner in any way he chose for twelve months, at the expiration of which time the heifers were again to be exhibited at Tredegar, to be re-weighed, and the owner of the heifer that should have gained the most weight, to be entitled to the prize, which Mr. White had the good fortune to pocket; as it appeared that his heifer, during the twelvemonths, had gained 7 cwt., while Mr. Berry's heifer had gained only 5 cwt.; a tolerably convincing proof that Hereford cattle do not stand in need of short-horned bulls, either to increase their size, or to dispose them to more early maturity. If they did require such aid, their chance of obtaining it from the short-horns would be more than doubtful.

As regards *milk*, I believe Herefords to be *quite on a par* with the *very best* animals of any other breed of cattle, short-horns or else. Experience has taught me, that *no animals*, possessing form and other requisites giving them a great disposition *to fatten*, are calculated to give *much milk*; nor is it reasonable to suppose they should; it would be in direct opposition to the law of nature. Had I *voiled* it twenty years ago, my belief is, that I could, by this time, have bred twenty cows, purely from my own herd, which should have given a sufficient quantity of milk for (*paying*) dairy purposes; and I am equally confident that, in the same period, I could have bred a similar number, that would not, at any time, have given twenty quarts of milk per day among them. I feel confident I could effect either of these objects, much more easily and certainly than I could blend the two properties in the same animal, retaining also the form and quality best adapted to live hard and feed.

Having now, Sir, noticed all the points in Mr. Bates's letters which I consider necessary, and having imparted to him and your readers, the modicum of knowledge I possess relating to the breeding of animals, and, in part also, the means by which I obtained that knowledge, any further comment on my part would be superfluous. I shall, therefore, for the future, leave the subject to the discussion of Mr. Bates, from whose superior skill and experience, I doubt not, both the public and myself will derive great benefit, and under whose tuition I shall be unfeignedly willing to place myself, when he can prove the position he has assumed, by "*incontrovertible facts*." I have learned from observation and experience, that I am much more ignorant now, as regards the breeding of animals, than I considered myself to be forty years ago.

Apologising for the formidable length of this letter, I am, Sir, your very obedient servant,

JOHN PRICE.

Poole House, Dec. 8.

P.S.—I cannot resist this opportunity of offering a few remarks, for the consideration of breeders of Hereford cattle; those, more particularly, who live in the county of Hereford. These gentlemen must be aware, from the great and increasing attendance of graziers and others at their county fairs, and the eagerness there evinced to purchase Herefords at almost any price, that they are known to be a truly valuable breed of cattle. If other proof were required, I need only instance the eagerness evinced in Smithfield and elsewhere to buy Herefords, by a very shrewd, clever set of men, the butchers, the most choice cutting of whom are anxious to get hold of them; and the price per stone that Herefords command, above all other cattle, save the very best North Devons and the Scots.

I would, therefore, advise the Herefordshire gentlemen to look steadily at the high position they occupy as breeders, and to endeavour to maintain it by discarding any feelings of envy or jealousy which may exist, either among themselves or towards others, who *zealously* advocate their breed of cattle; let them, individually and collectively, embrace every chance of improving the breed of Herefords, regardless altogether from whose stock the improvement proceed; let form and quality be their beacon, with as much size as is compatible with Nature's law; they will thus, as they have hitherto done, keep the lead in the struggle for superiority, even for prize cattle, which, if I mistake not, was seven to two in their favour at the Smithfield cattle show last year, and about 6 to 4 the year preceding: I hope this year it may be as eight to one, but even should it be that odds against them, they have nothing to fear if they will condescend to act on the advice I humbly offer; and if there be among them any breeder desirous of trying a cross from other breeds, let it be made with a *West Highland Scotch bull*. I would try this cross myself with ten cows, did I know where to get a good bull; and I would back the produce, for paying money in proportion to the food consumed, against the progeny of any short-horned bull in or out of England.

JOHN PRICE.

ON PREPARING NIGHT-SOIL.

SIR,—I feel obliged to your correspondent, G. Babin, for his valuable remarks on preparing night-soil, and hope he will be so kind as inform me, through your paper, whether ammonia escapes from the dung in the yards where cattle are fed in winter, or if it remains in

solution till the heat of fermentation in the dung-camps in spring disengages it. I consider it is of importance that farmers should know if they should apply gypsum to prevent the loss of ammonia in their cattle-yards, or if it be merely necessary to do so in the dung-camps when they begin to ferment.

Would it not be proper to sprinkle the layers of dung, as they are placed in the camp, with gypsum, to make sure of retaining the ammonia?

I wish also to know from whom in London I can procure genuine gypsum in powder, as the most part of two tons which I used on clover this year was evidently plastered lime, ground down.

Your obedient servant,

Nov. 27, 1840.

J. MACKENZIE.

THE VETERINARY COLLEGE.

An opinion seems to be entertained by some that the remarks in reference to Professor Sewell, and the Veterinary College, in our last number, exhibited an improper degree of acrimony. We then stated that if we were in error, we should be happy to correct any mistake. We have obtained some further information, and we see no reason to alter our opinion; we impute nothing improper to Professor Sewell personally, we deal with him as an officer of the Veterinary College, and without reference to the Professor in any way, we assert, that the Royal Agricultural Society has not had value received for the three hundred pounds paid, or about to be paid, to the College. The Veterinary College, as it seems, met the Society in a laudable spirit, by erecting, at *their own expense*, suitable buildings for the reception of cattle, sheep, and pigs. The sum contributed by the Society has, therefore, been appropriated to some other purpose. It has, we presume, been given to some one. Now, we ask, in the name of the members of the Royal Agricultural Society, to whom has it been given, and what have been the services rendered? The charge against the late Professor Coleman, in reference to the instruction of the students at the College in the diseases of cattle, sheep, and pigs, was that it was made less than a secondary object. We have stated that only three lectures on this subject were delivered in the last session, and we are further informed that the instruction generally was not more than in Professor Coleman's time. Now, we say, this is not what was expected when the Society offered to contribute 200*l.* per annum to the funds of the college; if the facts be not as we have stated, we are willing to give any explanation which the parties concerned may be pleased to furnish us with. The proposed certificate from Professor Sewell, adverted to by Mr. Pusey, the President of the Royal Agricultural Society, will not suffice. A knowledge of the treatment of the diseases of cattle, sheep, and pigs, must be made part and parcel of the education of the veterinary student, and if the laws of the college do not at present admit of it, they must be amended. We repeat we seek not to attach blame to any one personally, but the College must make a suitable return for the amount received from the Society.—*Mark Lane Express.*

SMITHFIELD CLUB CATTLE SHOW.

TUESDAY, DECEMBER 8, 1840.

The stewards of the yard, Mr. Franklin, of Ascott, near Tetworth; Mr. Worthington, of Brockhurst, Coventry; and Mr. Ladds, of Ellington, Huntingdon; and the judges—for cattle and long-woolled sheep, Mr. Charles Stokes, of Kingston, near Kegworth, Notts; Mr. William Trinder, of Wantage, Berks; and Mr. Richard Parkinson, of Babworth, Notts;—for short-woolled sheep and pigs, Mr. William Tanner, of Patcham, near Brighton; Mr. William Stace, of Barnack, near Alfreton; and Mr. William Saxby, of Rottendean, near Brighton;—all assembled on Tuesday. The honorary secretary, Mr. Humphry Gibbs, laid before the stewards the various certificates received of the stock to be exhibited for the club's premiums and medals and as extra stock.

The judges, after reading and considering their printed instructions, and having, in the yard, learned from memorandums placed in their hands by the secretary all the particulars contained in the certificates, except the names of persons and places thereon, whilst they were examining each animal to which the several certificates referred, proceeded, being alone, to consider and determine the comparative merits of the animals in each class and of those in extra stock, by the numbers affixed to them, and resolved to make the following report, viz.:—

We, Charles Stokes, of Kingston, William Trinder, of Wantage, Richard Parkinson, of Babworth, being the judges appointed to examine and decide on the respective merits of the beasts and long-woolled sheep shown by the several candidates for the premiums and medals offered by the Smithfield Club, and of those in extra stock, having considered the printed instructions given us, do adjudge as follows:—

CLASS I.

That the first premium of 20 sovereigns, in class 1, for oxen or steers of any breed, under five years of age, without restriction as to feeding, be adjudged to No. 28—viz., the Right Honourable the Earl Spencer, of Althorpe, near Northampton, for his lordship's 4 years and 5 months old Durham ox, bred by his lordship, and fed on cake, Swedes, mangel wurzel, and carrots. Travelled to the show by van 10, and by rail 60 miles.

That a silver medal, as the breeder of the above, be awarded to the Earl Spencer.

That the second premium of 15 sovereigns, in class 1, as above, be adjudged to No. 31—viz., Mr. Christopher Smith, of Burley-on-the-Hill, for his 4 years and 1 month old Hereford ox, bred by Mr. G. Proctor, of King's Pon, Herefordshire. Travelled to the show by van 100 miles; and fed on cake, bean meal, hay and carrots.

That the third premium of 5 sovereigns, in class 1, as above, be adjudged to No. 34—viz., Mr. Wratistlaw, of Rugby, Warwickshire, for his 4 years and 7 months old Hereford ox; bred by Mr. Phillips, of Leigh House, Upton-on-Severn, and fed on cake, barley flour, cabbages, turnips, and hay. Travelled to the show on foot 2 and by rail 84 miles.

CLASS II.

That the first premium of 30 sovereigns, in class 2, for oxen or steers of any breed, under 6 years of age, weight 90 stone and upwards, that shall not have had cake, corn, meal, seeds, grains or distiller's wash, during 12 previous months to the 1st August, 1840, be adjudged to No. 36—viz., the Right Hon. the Earl Spencer, of Althorpe, near Northampton, for his lordship's 5 years and 1 week old Durham ox, bred by himself, and fed on Swedes, mangel wurzel, and 896 lbs. of cake; travelled to the show by van 10 miles, and by rail 60 miles.

That a silver medal, as the breeder of the above, be awarded to the Earl Spencer.

That the second premium of 20 sovereigns, in class 2, as above, be adjudged to No. 46—viz., the Most

Honourable the Marquis of Exeter, of Burghley Park, near Stamford, for his lordship's 3 years and 9 months old Durham steer, bred by his lordship, and fed on 900 lbs. of cake and 650 lbs. of barley flour; travelled to the show by van 90 miles.

That the third premium of 5 sovereigns, in class 2, as above, be adjudged to No. 43—viz., Mr. Buckley, of Normanton Hill, Nottinghamshire, for his 4 years and 11 months old Hereford ox, bred by himself from the stocks of the Earl Talbot and Mr. Price, and fed on vegetable food, and 840 lbs. of cake and 3 bushels of barley-meal; travelled to the show on foot 3 miles, and by rail 155 miles.

CLASS III.

That the first premium of 15 sovereigns, in class 3, for oxen or steers of any breed, under 5 years of age, under 90 stone and above 70 stone weight, that shall not have had cake, corn, meal, seeds, grains, or distiller's wash during 12 months previous to the 1st of August, 1840, be adjudged to No. 51—viz., Mr. H. Chamberlain, of Desford, near Leicester, for his 3 years and 8 months old Hereford ox, bred by himself, and fed on grass, hay, green vegetables, 921 lbs. of cake, and 100 lbs. of bean-meal; travelled to the show on foot 10 miles, and by canal 140 miles.

That a silver medal, as the breeder of the above, be awarded to Mr. H. Chamberlain.

That the second premium of 10 sovereigns, in class 3, as above, be adjudged to No. 49—viz., Mr. Bailey, of Shenley House, near Stoncy Stratford, for his 4 years and 9 months old Hereford ox, bred by Mr. E. West, of Little Frome, and fed on grass, hay, 1,700 lbs. cake; travelled to the show by rail 50 miles.

CLASS IV.

That the premium of 10 sovereigns, in class 4, for oxen or steers of any breed, under 4½ years of age, and under 80 stone weight, without restriction as to feeding, be adjudged to No. —viz. No entry.

That a silver medal, as the breeder of the above, be awarded to

CLASS V.

That the first premium of 10 sovereigns, in class 5, for oxen or steers of any breed, not exceeding 4 years and 3 months of age, under 70 stone weight, that shall not have had cake, corn, meal, seeds, grains, or distiller's wash, during 12 months previous to the 1st of August, 1840, be adjudged to No. 56—viz., Mr. Hay, of Sthenkine, Aberdeenshire, for his 3 years and 10 months old Hereford and short-horned ox, bred by Mr. Shepherd, of Tarers, and fed on grass, turnips, and straw.

That a silver medal, as the breeder of the above, be awarded to Mr. G. Shepherd.

That the second premium of five sovereigns, in class 5, as above, be adjudged to No. 54—viz., Mr. B. E. Bennett, of Marston House, near Market Harborough, for his 3 years and 8 months old Durham and Hereford ox, bred by Mr. R. Worthington, of Brockhurst, Coventry, and fed on grass, hay, turnips, and 1,046 lbs. of cake; travelled to show on foot 16, and by rail 84 miles.

CLASS VI.

That the first premium of 10 sovereigns, in class 6, for oxen or steers of the Scotch or Welsh breed, of any age, above 70 stone weight, that shall not have had cake, corn, meal, seeds, grains, or distiller's wash, during 12 months previous to the 1st of August, 1840, be adjudged to No. 58—viz., Mr. B. E. Bennett, of Marston House, near Market Harborough, for his Scotch ox, fed on grass, hay, turnips, 1,404 lbs. cake and 160 lbs. barley and bean meal; travelled to the show on foot 16, and by rail 84 miles.

That the second premium of five sovereigns, in class 6, as above, be adjudged to No. —viz., withheld from want of merit.

CLASS VII.

That the first premium of 10 sovereigns, in class 7, for oxen or steers of the Scotch or Welsh breed, of any age, under 70 stone weight, that shall not have had cake, corn, meal, seeds, grain, or distiller's wash, during 12 months previous to the 1st of August, 1840, be

adjudged to No. 60—viz., Mr. B. E. Bennett, of Marston House, Market Harborough, for his Scotch ox, fed on grass, hay, turnips, 1,212 lbs. cake and 120 lbs. barley and bean meal; travelled to the show on foot 16 miles, and by rail 84 miles.

That the second premium of 5 sovereigns, in class 7 as above, be adjudged to No. —viz., withheld from want of merit.

CLASS VIII.

That the first premium of 20 sovereigns, in class 8, for fattened cows or heifers under 5 years of age—freemartens and spayed heifers not qualified—be adjudged to No. 63—viz., Mr. J. F. Potterton, of Stone, near Weedon, for his 4 years and 7 months old Durham heifer, bred by himself, and fed on bean, meal, potatoes, carrots, and rape; travelled to the show on foot 2, and by rail 70 miles.

That a silver medal, as the breeder of the above, be awarded to Mr. Potterton.

That the second premium of five sovereigns, in class 8, as above, be adjudged to No. 65—viz., Mr. Wratistaw, of Rugby, Warwickshire, for his 4 years and 8 months old Durham heifer, bred by Mr. Caldicot, of Rugby, and fed on cake, barley flour, cabbages, turnips, and hay; travelled to the show by carriage 84 miles.

CLASS IX.

That the first premium of 20 sovereigns, in class 9, for fattened cows of 5 years old and upward—freemartens and spayed heifers not qualified—be adjudged to No. 70—viz., the Right Hon. Earl Spencer, of Wisetown, Nottinghamshire, for his lordship's 8 years and 8 months old Durham cow, bred by his lordship, and fed on Swedes, hay, cakes, barley and bean meal; travelled to the show by van 20, and by rail 160 miles.

That a silver medal, as the breeder of the above, be awarded to the Earl Spencer.

That the second premium of 5 sovereigns, in class 9, as above, be adjudged to No. 74—viz., Mr. Jones, of Chastleton House, Chipping Norton, for his 12 years old long-horned cow, bred by the late Mr. Wakeman, of Beckford, Gloucestershire, and fed on hay, Swedes, barley meal, and linseed; travelled to the show by van 35 miles, and from Steventon by rail.

That the gold medal to the breeder of the best beast in any of the above classes be awarded to the Right Hon. the Earl Spencer, of Althorpe, near Northampton, for his lordship's 5 years and 1 week old Durham ox, which gained the first premium in class 2.

CLASS X.

That the first premium of 10 sovereigns, in class 10, for long-woolled fat wether sheep, 1 year old, that have never had cake, corn, meal, seeds, or pulse, be adjudged to No. 86—viz., Mr. H. Chamberlain, of Desford, near Leicester, for his three 20 months old new Leicester wethers, bred by himself from Mr. Buckley's rams, 20 months old.

That a silver medal as the breeder of the above sheep be awarded to Mr. H. Chamberlain.

That the second premium of five sovereigns, in class 10, as above, be adjudged to No. 84—viz., Mr. Painter, of Burley-on-the-Hill, in Rutlandshire, for his three 20 months old new Leicester wethers, bred and fed by himself.

CLASS XI.

That the premium of 10 sovereigns, in class 11, for long-woolled fat wether sheep, 1 year old, under 8 stone weight, that have never had cake, corn, meal, seed, or pulse, be adjudged to No. 89—viz., Mr. Painter, of Burley-on-the-Hill, Rutlandshire, for his three 20 months old new Leicestershire wethers, bred by himself from rams hired of Mr. Cresswell, of Ravenstone.

That a silver medal, as the breeder of the above sheep, be awarded to Mr. Painter.

CLASS XII.

That the first premium of 15 sovereigns in class 12, for long-woolled fat wether sheep, one year old, without restriction as to feeding, be adjudged to No. 93—viz., his Grace the Duke of Bedford, of Oakly, near

Bedford, for his grace's three 20 months Leicester wethers, bred by his grace.

That a silver medal, as the breeder of the above sheep, be awarded to his Grace the Duke of Bedford.

That the second premium of 5 sovereigns, in class 12, as above, be adjudged to No. 95—viz., Mr. Painter, of Burley-on-the-Hill, Rutlandshire, for his three 20 months old new Leicester wethers, bred by himself from rams hired of Mr. Cresswell, of Ravenstone.

That the gold medal to the breeder of the best pen of long-woolled sheep exhibited in classes 10, 11, and 12, be awarded to No. 93—viz., his Grace the Duke of Bedford, for his grace's three 20 months old Leicester wethers, which gained the first premium in class 12.

CHARLES STOKES,
WILLIAM TRINDER,
RICHARD PARKINSON, } Judges.

We, William Tanner, of Patcham, near Brighton; William Stace, of Banack, near Alfreton; William Saxby, of Rottendean, near Brighton, being the judges appointed to examine and decide on the respective merits of the short-woolled sheep and pigs, shown by the several candidates for the premiums and medals offered by the Smithfield Club, and of those shown in extra stock, having considered the printed instructions given us, do adjudge as follows:—

CLASS XIII.

That the first premium of 15 sovereigns, in class 13, for short-woolled fat wether sheep, 1 year old, without restriction as to feeding, be adjudged to No. 108—viz., his Grace the Duke of Richmond, of Goodwood, near Chichester, for his grace's three 20 months old Southdown wethers, bred and fed by his grace.

That a silver medal, as the breeder of the above sheep, be awarded to his Grace the Duke of Richmond.

That the second premium of 5 sovereigns, in class 13, as above, be adjudged to No. 109—viz., Mr. Grantham, of Stoneham, near Lewes, for his three 20 months old Southdown wethers, bred and fed by himself.

CLASS XIV.

That the premium of 10 sovereigns, in class 14, for short-woolled fat wether sheep, 1 year old, under 8 stone weight, without restriction as to feeding, be adjudged to No. 113—viz., Mr. Jonas Webb, of Babraham, near Cambridge, for his 3 Southdown wethers, 20 months old respectively, and bred by himself.

That a silver medal, as the breeder of the above sheep, be awarded to Jonas Webb.

CLASS XV.

That the first premium of 10 sovereigns, in class 15, for short-woolled fat wether sheep, 2 years old, without restriction as to feeding, be adjudged to No. 121—viz., Mr. Grantham, of Stoneham, for his three 32 months old Southdown wethers, bred and fed by himself.

That a silver medal, as the breeder of the above sheep, be awarded to Mr. Grantham.

That the second premium of 5 sovereigns, in class 15, as above, be adjudged to No. 127—viz., Mr. Hayward, of Manor House, Weston Truville, for his three 32 months old Southdown wethers, bred and fed by himself.

That the gold medal to the breeder of the best pen of short-woolled sheep, exhibited in the 13th, 14th, or 15th classes, be awarded to No. 121—viz., Mr. Grantham, of Stoneham, for his three 32 months old Southdown wethers, which gained the first premium in class 15.

CLASS XVI.

That the first premium of ten sovereigns, in class 16, for pigs of any breed, above four months and under nine months old, be adjudged to No. 141—viz., Mr. W. Temple, of Heston, near Hounslow, for his three 35 weeks old improved Buckinghamshire pigs, bred by himself, and fed on pea and barley meal, toppings, and dairy slops.

That a silver medal, as the breeder of the above pigs, be awarded to Mr. W. Temple.

That the second premium of five sovereigns, in class 16, as above, be adjudged to No. 139—viz., Mr. Worthington, of Brockhurst, near Coventry, for his three 34 weeks old Warwickshire pigs, bred by himself, and fed on whey, barley meal, and milk.

EXTRA STOCK.

That a silver medal as the exhibitor of the best beast in extra stock, be presented to No. 77—viz., Mr. H. Chamberlain, of Desford, near Leicester, for his 4 years and 8 months old Hereford and Durham heifer, bred by himself, and fed on grass, hay, green vegetables, cake, and bean meal. Travelled to the show on foot 10, and by canal 140 miles.

That a silver medal as the exhibitor of the best long-woolled sheep in extra stock, be presented to No. 99—viz., Mr. C. Large, of Broadwell, Oxon, for his 56 months old long-woolled ewe, bred and fed by himself.

C. STOKES,
W. TRINDER, } Judges.
R. PARKINSON, }

That a silver medal, as the exhibitor of the best short-woolled sheep in extra stock, be presented to No. 131—viz., Mr. W. Hayward, of Manor House, Weston Turville, for his 32 months old Southdown wether, bred and fed by himself.

That a silver medal as the exhibitor of the best pig in extra stock, be presented to No. 145—viz., Mr. Crawther, of Isleworth, for his 30 weeks and 2 days old improved Middlesex pig, bred by himself, and fed on fine toppings, peas, and skimmed milk.

W. TANNER, } Judges.
W. STACE, }
W. SAXBY, }

London. Dec. 8, 1840.

COMMENDATIONS.

CLASS I.

The judges commend Mr. R. Chatfield's 4 years and 8 months old fine Sussex ox.

Mr. Cheetham's 4 years and 7 months old short-horned ox.

CLASS II.

The judges highly commend Mr. Baily's 4 years and 6 months old Hereford ox.

The judges highly commend Mr. W. Cowper's 3 years and 9 months old Hereford ox.

The judges commend the Earl of Warwick's 3 years and 11 months old Hereford ox; Mr. Lofts' 4 years and 7 months old short-horned ox; and the Duke of Bedford's 3 years and 11 months old Hereford ox.

CLASS VIII.

The judges highly commend Mr. John Bullin's 4 years and 7 months old short-horned heifer.

The judges highly commend Mr. R. Morton's 4 years and 10 months old short-horned heifer; Mr. J. Beasley's 4 years and 7 months old short-horned heifer; his Grace the Duke of Norfolk's 4 years and 2 months old Devon heifer; Mr. Hayward's 4 years and 10 months old short-horned heifer; Sir F. Booth's 3 years and 9 months old Hereford heifer.

CLASS IX.

Generally commended.

CLASS XII.

The judges commend Mr. H. Chamberlain's 20 months old Leicester wether; Mr. Sanday's 20 months, and Mr. Purser's 20 months old Leicester wethers.

CLASS XIV.

The judges highly commend the Duke of Richmond's 20 months old Southdown wethers.

CLASS XV.

The judges highly commend Mr. Jonas Webb's 32 months old Southdown wethers.

THE DINNER.

The celebration of the anniversary was held, on Friday, December 11, as it has been for many years past, at the Freemasons' Tavern; about 300 gentlemen sat down to dinner, comprising landowners, farmers, and other occupiers of the land, as well as the *élite* of the grazing interests.

At about five o'clock Earl Spencer entered the room, and his lordship was received with general cheering. For some time previously there were anxious enquiries for the arrival of his lordship, as well as for that of His Grace the Duke of Richmond. The latter, as well as Philip Pusey, Esq., M.P., the president of the Royal Agricultural Society, Charles Handley, Esq., M.P., &c., was received with loud marks of approbation.

Among the principal persons present were the following, viz.:—Earl Spencer, president; Duke of Richmond; Earl Ducie; Lord Huntingfield; Hon. W. Nugent; Mons. Duverger; Henry Handley, Esq., M.P.; Philip Pusey, Esq., M.P., President of the Royal Agricultural Society; Hon. W. Noel, M.P.; C. W. Childers, Esq., M.P.; J. Bennett, Esq., M.P.; Col. Challoner; T. R. Barker, Esq.; Mr. Ellman, &c., &c., &c.

The CHAIRMAN, immediately on the removal of the cloth, rose and proposed the health of her Majesty, with three times three. The company responded to the request of the chairman with right good will. The chairman next proposed the health of His Royal Highness Prince Albert, with three times three. This toast was received with loud and continued cheering.

The CHAIRMAN then said—Gentlemen, I am happy to say that we have an addition to the next toast, which it has been my duty on former occasions to give, and I now propose to you to drink the health of the "Princess Royal, the Queen Dowager, and the rest of the royal family." (*Loud and continued cheering.*) The toast was drank with very considerable applause.

Earl SPENCER said he should, as on former occasions, preface the next toast with a few observations. Gentlemen, the next toast I have to propose to you is, "Success to the Smithfield Cattle Club." Gentlemen, I must freely admit that the exhibition of stock in the show-yard of this day has not been so numerous as it was in the last year. (*Hear, hear.*) I am not surprised at this, considering the disease which has prevailed among stock this year; and taking the whole show, it must be considered as good in quality as it was last year; but, gentlemen, it is a very good show, and if it had not followed the excellent show of last year, you would have said that it was a good show. I am rather precluded from speaking on the subject of the merit of the animals exhibited (*loud cheers, in compliment to the success of his lordship who gained several prizes at the present show*), but I may say that in some of the classes they are not as good as usual. I will speak freely out, and say that the first class is not so good as it was last year, but that the second and third classes are as good as they were last year—(*Hear, hear.*) As respects the southdown sheep, they are better this year than I think we have seen them before. I trust the Hereford breeders will allow me to address a few words to them. I do not think that they have shown so good on the present, as on other occasions. I think they ought to bring animals to the show that are level in their proportions; this is a fault in the Hereford breed. Last year I thought they had considerably improved in this respect. I shall

freely tell them of their faults, and, as a breeder of short-horns, if I am guilty of any errors I hope they will tell me so. (*Hear, hear.*) I am sorry that I have to tell them so, but at the same time I am glad to see that they have brought animals to the show as good as possible. It is my earnest desire that they should improve their breed. (*Hear, hear.*) With respect to the show of this year I may say it is a very good show, and as respects the club, it is in a very prosperous condition. (*Hear, hear.*) We have already provided the means of paying the prizes of next year, a case which has never happened before, and we have some money in pocket. I hope and trust that this prosperity will continue; but, gentlemen, there may a time arrive when we shall not be so prosperous as at present, and therefore I hope that we shall continue to have something to lay by to meet a reverse. I hope that this club will go on and continue to do as much good as it has already done, and I shall be most happy to see it continue in as good a condition as it is at present. I beg to propose as a toast, "Success to the Smithfield Cattle Club," with three times three. The company, with one accord, responded to the command of the noble president, and "one cheer more" was drunk with right good will.

The CHAIRMAN said that he now came to read to the meeting the award of the judges. (*Hear, hear.*) It had been usual for him to read what instructions had been given to the judges, &c., but now he thought (that course unnecessary. What was of the most interest to the meeting was the award of the prizes. (*Hear, hear.*) One cheer more was called for and immediately given.

The Duke of RICHMOND said it became his duty as one of the vice-presidents, and he regretted to say he was the only one present, to return thanks for the health that had been just drunk. The reception the company had given to the toast that had been proposed by his noble friend, was a proof at least that all present were convinced he was a warm well-wisher to the Smithfield Club. (*Hear, hear.*) Earl Spencer did not join the club in its prosperity, but at the time it was falling into decay. Gentlemen were aware that at the time when the club was embarrassed—when there was a good show of cattle, but a bad show of farmers at that table—Earl Spencer came forward and placed the club in the proud situation in which it is at present. An example was then set to all the different clubs throughout the country. In the presence of Earl Spencer I will only say, that he is what we all know him to be, a real true English country gentleman. (*Great and long-continued cheers.*) Without further preface, I will ask you to fill your glasses to the brim, and drain them in drinking the health of Earl Spencer.) The toast was loudly applauded, and the noble earl's health was drunk with fervency.) The Duke of Richmond remarked, before the noble Earl rose, that though his noble friend had been successful, they all should go on and try to beat him, and if they did so, they would remember that they had beaten a third class man.

The Noble CHAIRMAN rose and said he had now to return thanks for the honour they had done him, and he did so with no small degree of gratification, as he certainly had been very successful at this show,—indeed so successful that he could not hope to be so again. Indeed he might think he had done his best for the next three or four years. His success on the present occasion was most gratifying to him as a breeder. Whatever may be the prizes given by the club, they are the best, as they are

given for animals in their fat state. You cannot have a breeding stock without sacrificing some of the females. For many years past he had not been so successful, and he might not be so again for some years to come, but he should be able to look back to this year with perfect satisfaction. With respect to what his noble friend had said, it was true that the club was in a prosperous state, but there had been an interregnum, during which a different state of things had existed. The present success was owing to the fact that the farmers supported it. Those who felt an interest in the society ought to subscribe to it, in order that a fund might be laid by for adverse times. In return the noble Lord returned the company his best thanks, and then proceeded to the distribution of the prizes.

The Noble CHAIRMAN then read the list of the award of prizes.

As the prizes were delivered over to the successful competitors, the healths of each were drunk.

Mr. BUCKLEY in reply to the honour the company did him as a successful candidate, said he was happy to appear before that company as a gainer of a first class prize. He should look forward to next year, when he should be happy to beat his lordship. (*Laughter.*)

The health of the Marquis of EXETER was received with great applause, as well as that of Mr. Chamberlain.

Mr. CHAMBERLAIN said he felt great satisfaction at the honour they had done him in drinking his health. He had been successful that year, but could not say he agreed with his lordship in the remark that he (Mr. Chamberlain) did not expect to be successful for the next 3 or 4 years. (*Laughter.*) Still considering what he had done at the last show, he might be well satisfied. He begged to return thanks for their having drunk his health.

Mr. POTTERTON, on his name being noticed, said he felt proud as a breeder of so good an animal that it had got a first prize. He hoped the club would go on and prosper. He should do all in his power to beat his lordship next year. (*Hear, hear.*)

On the health of Mr. WHITMORE JONES being drunk, that gentleman returned thanks, and claimed the consideration of the meeting, as that was his first appearance. He was certainly most surprised at winning a prize for his long-horned animal. If it was an object to keep up stock for dairy purposes, the long-horns were the best. He had no intention of exhibiting his animal last autumn, but for a friend, who thought his long-horns were extinct, and that he should be successful. He (Mr. Jones) should be happy, therefore, to show again.

On reaching the 13th class, Earl SPENCER alluded to the fact that a different set of Judges were appointed for the remaining classes.

We ought to mention that the presentation of the gold medal to the Duke of Bedford caused much approbation.

On the presentation to the Duke of Richmond of the first prize in class 13, much applause was elicited, and the health of his Grace was drunk with loud cheers.

The Duke of RICHMOND said, I beg to assure you, that I have received the expressions of the kindness with which you have so frequently honoured me, with the same feelings of deep gratitude as on many other occasions since I had the good fortune to meet among you. I must repeat what I have stated before to you, that these compliments are showered on me by the farmers of England, not so much on account of myself, but to the desire which I have shown to promote your interests. At

all times I am happy to meet those who are desirous of seeing their own tenants and farmers, as I always am. (*Great cheering.*) Gentlemen, I take it not as a claim I have myself, but to the class to which I belong. As a landlord, I am always happy to come among my own tenants and farmers. I tell the landlords that if they do not meet their farmers and tenants, they lose one of the greatest advantages which they might obtain. It gives me the greatest pleasure to see the establishment of new farmers' clubs in all parts of the country, while, at the same time, the old established societies do not fall off. As I take it, this shows an intention, on the part of the farmers of England, not to stand still, but to hold that station in society to which they are fairly entitled; that they intend to bring science into effect, while, at the same time, they ought not to forget that it is practical science which they must bring to bear. (*Hear, hear.*) The societies cannot be upheld without the farmers coming forward generally to support them. They have come forward in support of the Royal Agricultural Society; and, if I know anything of them, they are not likely to turn round and abandon them, if they are properly conducted. We, of the Agricultural Society of England, look to them for much valuable information, to tell us of the experiments they have tried, and the facts they have learnt and seen. The Royal Society of Agriculture will thus be enabled to diffuse the most useful knowledge through all parts of the United Kingdom; and by doing so, they will be enabled to do good to all. I find myself this year a winner in Class 13, for young sheep. I am pleased at this, as it gives me hopes of success in another year. You are aware of the rivalry which exists between Mr. Grantham and myself, and I am delighted in seeing him having the second prize to me this year; also that Mr. Webb and Mr. Hayward are successful. I will try next year again to get the prize; and if I am beaten, I shall be satisfied, and I will leave this room as good friends with all as if I had not met any opponents. If ever my exertions—insignificant as they may be—are required for the promotion of the agriculture of this country, they shall be at the command of England. I will prove to them that I am deeply grateful for favours received. (*Cheers.*) The noble Duke concluded by saying, that he believed in his conscience that on the prosperity of the agriculture of the country depended the security and well-being of all our fellow-countrymen. He assured them again, of his sincere gratitude to all present. "And I beg," said his Grace, "in return, to drink health and happiness to you and yours." (*Cheers.*)

On the health of Mr. Webb being proposed, that gentleman returned thanks, and said that he should not rest satisfied till he had beaten His Grace the Duke of Richmond.

The healths of Mr. Hayward and others, who had gained prizes, were drank successively.

The noble CHAIRMAN then proposed the health of Mr. Charles Stokes, Mr. William Trinder, and Mr. Richard Parkinson, the judges for cattle and long-woolled sheep, who had done their duty carefully, and had honestly awarded the prizes (*cheers*). The Chairman also proposed the healths of Mr. Wm. Tanner, Mr. Wm. Stacey, and Mr. Wm. Saxby, the judges for short-woolled sheep and pigs.

Mr. TANNER, in returning thanks, said that they had taken time, and had closely examined the animals, and they (the judges) could assure every gentleman who might feel annoyed, if any there were,

that they had awarded the prizes to the best of their judgment.

The CHAIRMAN said, that as the healths of all the successful candidates had been drank, he would now propose the healths of those who had been unsuccessful.

The CHAIRMAN again rose, and said, that as it appeared that none of the unsuccessful candidates would return thanks for his having drank their healths, he would propose a toast. The stewards of the show have had a good deal of trouble, as well as those who had to select the stewards. This is a business of trouble and great responsibility, and we are much obliged to any gentleman who will undertake it. The noble lord proposed the healths of the stewards of the show (*cheers*).

Mr. BISHOP returned thanks. He had come forward with the intention of promoting the interest of the Club, and he hoped next year that they would have more to do.

Earl SPENCER then rose, and said—Gentlemen, the next toast that I shall have the honour to propose to you is one upon which I shall have pleasure in addressing something to you. It is now three years since, in this room, I suggested the establishment of the Royal Agricultural Society of England. Gentlemen, I hope and trust that there is not one of you, that chanced to be present, who has reason to regret the establishment of the Society. But for the Smithfield Club, however, that Society would not have existed. It has, however, at a fractional expense to the farmers, extended throughout the country, and I believe that we have now members belonging to it in every part of the kingdom. It has done good, as every day's experience shows. One of the first objects of the Royal Agricultural Society, his lordship observed, was to promote scientific enquiries. There were men who thought that everything like science did no good; but the question was, if it did not do all that could be wished, there could be no doubt that agriculture must be benefited by enquiries promoted by scientific men.

It had been said of Davey that the application he had made to agricultural chemistry had produced no practical result. He was one of the ablest men of the age, and though unsuccessful, still upon the foundation laid upon his science may be raised a structure which would be of the greatest advantage to all. Everything which was said thirty years ago against steam-power had proved unfounded. It was then said that to apply steam power for the purposes of navigation was absurd. It was said so by the lords of the admiralty, but now all knew the untruth of the assertion. In the same way it may be said of applying science to agriculture, but such assertions could not be upheld. It was quite as monstrous to say that a knowledge of the qualities of soil was absurd, as saying 30 years ago that steam-power could not be used to propel vessels through the water. With respect to himself, he had not diminished his opinion of the benefits that must result by the application of science to agriculture, and he saw clearly the results that must arise by the establishment of societies such as this. He had seen a spirit of observation and enquiry, and a desire to improve agriculture in most quarters. The establishment of this society he felt must do great good to agriculture. (*Hear, hear.*) The noble lord concluded by proposing the health of Mr. Pusey, the President of, and success to the Royal Society of Agriculture.

The PRESIDENT of the Royal Society of Agriculture, Philip Pusey, Esq., M.P. rose, and was re-

ceived with loud cheering. He said, my Lord Spencer and Gentlemen, I should feel great embarrassment in returning thanks for the honour you have done me, this being the first time I have had the honour of joining the club, but that I see present many of the members of the society of which I have the honour to be President. It is natural that I should feel some embarrassment on this occasion, the more so, as I feel that this room is the cradle of the Royal Agricultural Society. To our noble President the Duke of Richmond, to Mr. Handley, and many others, the society owes existence. Lord Spencer has dilated on what agriculture may owe to science, and there is one thing also before this, viz. —that agriculture must help science. Many books have been written on agriculture, but in all of them there is an absence of facts. I have written myself, but imperfectly, two or three books on this subject, and being a good listener I have derived more information from farmers, and even from ploughmen, than in any other quarters. Even recently I have obtained much valuable information from a ploughman who had been in that capacity for 30 years. The farmers are slow to adopt science, principally because scientific men are too hasty in enforcing those principles which they consider to be right. (*Hear, hear.*) And the best book the farmer could have would be one that would record all his prejudices. The confidence I have in the benefits that must be conferred by the Royal Agricultural Society is greatly increased when I see what good this club has done, and which may be told in a very few words. In the year 1798 I believe the population of this country began rapidly to increase; up to that period the meat of this country had been produced on the best grass land, and as it was expected soon to be impossible to produce sufficient for the consumption of the country, then early maturity was looked to, by which two sheep were made fit for market, where our forefathers only produced one. Lord Leicester and others turned their attention to rabbit warrens, and thus has been produced excellent beef and mutton which our forefathers did not think it possible to be obtained on sandy land. The principle of artificial food is not yet fully known, indeed I am told that beef may be produced with straw, with some other nutritive food, such as distiller's wash, &c.; taking these things therefore into consideration, the Royal Agricultural Society must do as much good to agriculture as the Smithfield Cattle Club has done in improving the breed of stock. (*Hear, hear.*)

Earl SPENCER then gave as a toast, the Vice-Presidents of the Club, which was drank with very great cheering.

The Duke of RICHMOND rose to return thanks. Unfortunately, said his Grace, I stand here the only Vice President, nor has there been stated to me any excuse for the absence of my colleagues, I feel that they ought to have been here, and if no excuse can be offered for them, they ought to be required to give up the situation they hold. My noble friend in the chair, however, has just reminded me that Sir John Sebright and Lord Western are in ill-health, but still there are some who ought to have been here. At the same time, I am certain that the Vice-Presidents would not have allowed their names to stand if they were not satisfied of the great advantages the country has derived from the establishment of the Smithfield Cattle Club. (*Hear, hear.*) I own I like meeting bodies of farmers of this country. I never go to meetings of farmers without obtaining much practical information, and at the end of the year, I find I have (added to my stock of good agricultural knowledge), I feel that upon the prosperity

of the Smithfield Cattle Club, depends much the success of the local societies of the country. It is of great importance to get bodies of occupiers of the land together, and wherein that which makes mischief at public meetings cannot take place; I allude to political matters. You go back and give to others information which they did not possess before. You part without abusing your neighbour, and without doing ill to any one, you do good to all. (*Cheers.*) In the name of the Vice-Presidents, I return thanks.

The noble CHAIRMAN said, the next toast he had to propose was the health of a gentleman to whom the Club owed great obligations,—he meant the honorary Secretary, Mr. Gibbs. He (Lord Spencer) from meeting him on many occasions, could say that there was no one more desirous to promote the interest of the Club than Mr. Gibbs. He receives no emolument from the Society, but still he is as anxious for its success as if his fortune depended on it. (*Cheers.*)

The toast was responded to throughout the room.

Mr. GIBBS said, my Lord and Gentlemen, I am truly gratified to find that my humble services have met your approbation, and which will be at your command so long as you shall be pleased to elect me as Secretary; to promote the prosperity of the Society and further its objects, no exertions shall be spared on my part. I beg leave in return to drink all your healths.

The CHAIRMAN remarked, in order to facilitate a part of the business of the evening, that the collector was in the room.

Mr. MAYDWELL addressed the chair, but owing to the confusion which existed at the time, he was but partially heard. He said that he was principally led to make a few observations in consequence of what had fallen from Mr. Pusey, and in connection with one of the objects of the Royal Agricultural Society of England. He alluded to the giving of premiums to servants for long service. He referred, as we understood him, to a society established for this purpose, the object of which was to extend these rewards among labourers who had supported themselves without proclial relief. Such a plan was likely to draw out extraordinary instances of virtue in our labouring population. This institution was not so generally known as it ought to be. It was this and other similar institutions, which brought forward virtue as the sun brought forth flowers. It must be beneficial when you show the labouring population that virtue in any situation of life shall be rewarded.

Earl SPENCER would presently make an observation on what had just been said, but the toast he would now propose to them was "Success to Agriculture." (*Cheers.*)

The CHAIRMAN then gave "Success to Manufacturers,"

Earl SPENCER then gave "Success to the Labourers of the Country," and said that he perfectly concurred in the observation, that the agricultural societies throughout the country should give encouragement to well-deserving labourers. As in mechanics, nothing was so absurd as to give force where force was not required; so it was with labourers, who should be encouraged to good conduct rather than coerced. Agricultural institutions could reward good conduct in the localities where they were situated. It would be impossible to give a prize in this metropolis, as a local knowledge was necessary, and they would have to meet persons from Northumberland, and anywhere else, before it could be awarded. The local societies will under-

stand this, and they will confer great benefit by encouraging good conduct in labourers. It was not necessary for him to press this subject further, as he did not know any agricultural societies which gave prizes such as these that had not done good. It was their interest that the labourers should have every comfort and to promote their prosperity. He therefore proposed as a toast, "Success and prosperity to the labourers, with three times three." The toast was warmly received.

The CHAIRMAN then gave the "Duke of Manchester, the father of the Club."

Earl SPENCER proposed "the Duke of Richmond, and the Highland Society. (*Much cheering.*)"

The Duke of Richmond rose, and said—Gentlemen, my noble friend has accompanied my name with the Highland Society, because I have had the honour of being appointed a Vice-President of that society. I feel that honour more, as I am but little known to the farmers of Scotland, and I believe that my appointment took place because the farmers of England did me the honour of appointing me President of a society in this country. The Highland Society of Scotland would not have done me the honour of appointing me a Vice-President, if they were not fully satisfied that I take a deep interest in agriculture. Though not born a Scotchman, still I have some Scotch blood running in my veins, and I feel that the good which I have attempted to do to my tenantry in this country ought to be extended to the tenantry of Scotland. I have seen my tenantry in my own house once in every year. It is absolutely necessary for us landlords to see our tenants. We like to receive our rents, but I like to see them, and for them to become acquainted with me. I do not say that if they see me they will like me, but I think that the tenant should consider himself part of the family of the landlord. I believe that the Highland Society has conferred great benefit on the people in Scotland. That Society will go with you in anything that can promote the prosperity of agriculture. The toast which had just been given, to a useful and most meritorious class of men, was always drank with pleasure. There must be different grades, or else who would till our lands, or who would farm? Let us act according to the commands of Providence, "Do unto others as you would be done by." This was the motto which we should all adhere to. I have met many farmers in my life-time, and I never saw any who would not drain their glasses in drinking health and prosperity to the labourers. No man could ever hold up his head if he did not do so. I consider it an excellent plan to ask meritorious labourers to dine with you. I have seen men who have said that to meet their employers and their clergymen at dinner was more gratifying than the premiums they had received. If any landlords did this they would feel that they were doing to others that which they would wish should be done to them. His Grace concluded by saying, that in return for the health of the Highland Society I beg to say that our next show is coming on; we shall be happy to see you, and if you come you will find that hospitality is not forgotten in the "land o'cakes." (*Great cheering.*)

Earl SPENCER then announced the names of several candidates for admission.

The CHAIRMAN said—I propose the health of the father of agriculture in this country, who is a personal friend of mine. I propose the health of Lord Leicester (*cheering*).

Earl SPENCER then gave—"Live and let live."

This was the last toast of the evening, after which

the President left the chair, and the company separated.

It cannot fail to have been remarked by those who have been in the habit of attending the dinners of the Smithfield Club that the present was the most orderly and well conducted assemblage that ever met on any previous occasion.

THE ROYAL AGRICULTURAL SOCIETY AND THE SMITHFIELD CLUB.

If we may be permitted to use a sporting phrase, the two great meetings of the week, namely, of the Smithfield Club, and of the Royal Agricultural Society, have come off with great éclat.

On Tuesday, after the judges had concluded their labours, His Royal Highness Prince Albert visited the cattle-yard and inspected the animals, attended by Earl Spencer, and H. Gibbs, Esq., the Honorary Secretary; and, as we are informed, seemed to take great interest in the exhibition. On Thursday, His Royal Highness the Duke of Cambridge, honoured the Show with his presence. His Royal Highness attended by Earl Spencer and Col. Challoner, inspected the animals and implements, and expressed his approval both of the exhibition and of the arrangements. It is not a point of minor importance attendant upon the removal from the old place of exhibition, that these exalted personages have the opportunity afforded them of seeing an exhibition of the finest animals and vegetable productions of our soil without annoyance or inconvenience. George the Third was a farmer, and there is no doubt that the liking which he displayed for the pursuit, induced many persons of influence in that day to direct their attention to the subject. Since the reign of George the Third the practice of farming has made a great advance. The species of encouragement which it now should obtain from the Monarch is of another and a higher character. We trust we shall not incur the ridicule of our *practical* readers when we say, that we confidently believe that farming will become a scientific pursuit. The laws of nature, whether we observe them in the formation of the most minute animalculæ, or see their effects in the tempest and the whirlwind which desolate a whole country, are purely and beautifully scientific. There is not an operation performed by the farmer, the result of which, with the aid of science, may not be shown to be governed by certain rules. Experience teaches the farmer that lime is beneficial on one soil whilst it is useless on another; and that manure made from cattle fed on straw is very inferior to that produced by animals fed on oilcake; surely he would not be likely to farm worse, or more disadvantageously, who should be able to explain the *causes* of difference in the above-mentioned cases. As the personage nearest the throne, as the parent of the future occupant of the throne of these realms, we rejoice that His Royal Highness Prince Albert has evinced an incipient feeling of interest in the productions of our soil.

The exhibition of cattle at the Smithfield Show,

although not so numerous as in some past years, was of good quality. Earl Spencer's ox exhibited in class two, which, besides a premium of thirty sovereigns, obtained the gold medal as the "best beast in any class," was a most complete animal. The Southdown sheep were of a very superior order. The Leicesters, as a whole, not so good as we have seen them.

The alteration in the place of exhibition has not only added to the convenience of the exhibitors and of the visitors, but has also improved the finances of the club, which, as stated by Earl Spencer at the dinner, are now in a very flourishing condition. Some alterations in the classes and regulations have been made, which it will be well that our readers should notice to prevent irregularity or disappointment at the next show.

At the meeting of the Committee on Friday, it was resolved that, in future, the certificates of the exhibitors of stock, and the notices of exhibitors of implements and other articles, must be sent so as to reach Mr. Humphrey Gibbs, the honorary Secretary, on or before the 20th of November.

That the stewards of the year be allowed £7. each for their expenses.

That in class 3, which at present is for oxen or steers of any breed, under five years of age, under 90 stone, and above 70 stone weight, that shall not have had cake, corn, meal, seed, grains or distillers' wash during twelve months previous to the 1st of August, 1840, the weights shall be raised from under 90 stone to under 100 stone.

That the weight in class 5, in like manner, be raised from 70 stone weight to under 85 stone weight.

That the fifth class be called the fourth class, and the fourth class the fifth class.

That an additional sum of £5. be added to the first premium in classes 10, 13, and 15.

That all animals coming to the show shall be labelled by the exhibitor, describing the classes for which the animals are respectively intended, when the certificates are received the secretary will send labels to the exhibitors for that purpose.

That the cause of agriculture in this country is greatly indebted to Earl Spencer, will not be denied by any one, and it is not saying too much to assert that the Smithfield Club owes its present condition, if not its existence, to the generous support rendered by his Lordship, when it was in a sinking state. The consciousness of having done good service will, under any circumstances, furnish a rich reward to the rightly constituted mind; but we do not believe the man exists who is indifferent to the acknowledgement of services, or to whom a recognition of such services is not grateful. For these reasons, therefore, we think that a part of the proceedings of the Committee of the Club, on Friday, must have been very gratifying to the noble President. It has long been considered, that although the gold medal of the Club must be regarded as a mere token of the honour conferred, still that it was not of sufficient value, speaking of it in a pecuniary point of view. A resolution was therefore passed that the value be increased, and that a die be procured for the use of the Club; that Earl Spencer's likeness be stamped on one side of it, and that his lordship be

requested to sit to Mr. Wyon, of the Mint, in order that a perfect likeness may be procured. This well-merited testimony from the members of the Club cannot fail to be acceptable to his lordship.

Lord Western exhibited three shearling, and three two-shear wethers, of his Anglo-Merino, and one pure bred Merino wether, which when clipped last produced a fleece weighing 33lbs. This fleece was very much admired for its beautiful fineness of quality, and length and strength of staple. The quality of the wool on all the sheep was highly spoken of, and although much increased by crosses with our English breeds, was very little deteriorated in quality.

A Devon heifer was also exhibited by his lordship as extra stock, and attracted much admiration for her purity of breed and quality of flesh.

Messrs. Thomas Gibbs and Co., the Seedsmen to the Board of Agriculture, of the corner of Half-Moon-street, Piccadilly, had, as usual, a stand for the exhibition of roots, dried specimens of grasses, clovers, &c., and grass and other agricultural seeds. The arrangements adopted by them, we think, were superior to former years, the roots and other articles being classed according to their respective kinds. The long red, and long yellow mangold wurtzel were very large and handsome, also the globe mangold wurtzel; the kohlrabi, a root which approximates to the Swedish turnip in its use and qualities, were of an extraordinary size. There were some very good Swedish turnips, the bulbs of which were round and clean, and the top small; also white globe, green-topped yellow, and green globe turnips; some large Altrencham carrots, and Jersey parsnip. Some specimens of the white carrot weighed upwards of 7lbs. each; this kind of carrot is strongly recommended by Sir C. M. Burrell, and other eminent agriculturists, both for its acreable produce and nutritious qualities. The specimens of dried grasses consisted of all the most approved kinds for laying down lands to permanent grass—a part of agriculture these gentlemen were the first to turn their attention to, and have successfully followed since 1796.

The Messrs. Garratt exhibited a new chaff-cutting engine, which can be worked with much less power than others of the kind, and will cut chaff of different lengths. A turnip-cutter, equally adapted for slicing for beasts, or cutting in strips for sheep; and a very superior corn-dressing machine. They have also made further improvements in their threshing and drill-machines, since the meeting of the Royal Agricultural Society at Cambridge, for which as for their other implements they received many orders.

Amongst the agricultural machines and implements exhibited, those exhibited by Messrs. Bond, Turner, and Hurwood, of St. Peter's Foundry, Ipswich, comprising some excellent chaff-cutting machines, not liable, from their construction to choke, or be out of repair, cutting various lengths at pleasure, obtained much attention. To the larger sizes of these machines, which are worked by hand or horse, some excellent machinery was attached for working them by horse power. A machine for hummelling barley with ease, and without the slightest injury to the grain,

was exhibited. A new invented gorse cutting-machine. Mills for grinding beans, barley, &c., turnip-slicers; several sizes of iron and wood-framed oil cake breakers were very generally approved of. An implement for row culture was exhibited, called a Scotch expanding hoe and harrow, to be worked by one or two horses. We understood with regret, that these gentlemen had in town a large number of selected machines of the most approved kind, which they were unable to exhibit in consequence of the limited space afforded them for the show; amongst them was a superior dressing-machine, upon Cooche's patent principle, and some subsoil ploughs, horse-machinery, thrashing-machines, &c. We hope in future this inconvenience will be remedied, as nothing can be of greater advantage to the agriculturist than such an opportunity affords for examining the most approved machinery.

George Gibbs and Co., Seedsmen, &c., Down-street, Piccadilly, had an excellent exhibition of roots and seeds, particularly the globe and long mangel wurzel grown by Samuel Crawley, Esq., M.P., of Stockwood Park, Luton. Their white carrots were of a very large size; there were also some beautiful Swede turnips, one of which weighed 25lbs.; their stock generally attracted much attention.

As regards the position and prosperity of the Royal Agricultural Society, we need say little, a reference to the Report read at the meeting on Saturday last, will be perfectly satisfactory. So far as concerns its prosperity, the single fact of the number of members exceeding four thousand in two years and half, exhibits a degree of success never attained by any other similar institution. As to the beneficial results likely to accrue from its establishment, we refer to the speeches of His Grace the Duke of Richmond, Earl Spencer, and the President, Mr. Pusey, at the meeting, and at the dinner of the Smithfield Club. The noble President, Earl Spencer, observed, in reference to the establishment of the Society, "It is now three years since, in this room, I suggested the establishment of the Royal Agricultural Society of England." Well do we recollect the anxiety with which we awaited the reception of that suggestion, having for years previously advocated the establishment of such an institution. The cheers with which the suggestion was received, assured us of victory, knowing that it was to be supported by His Grace the Duke of Richmond, whose influence with the Club must ever be powerful, based as it is upon sound principle.

That support was given, and we point to the Royal Agricultural Society, as it now stands, as the result.

On Wednesday evening there was a considerable attendance of members at the rooms in Cavendish-square, when Earl Spencer and Mr. Pusey read some papers.

On Thursday evening Professor Henslow delivered a lecture on the diseases of Wheat, which was very fully attended, and was listened to with much interest.

The report of the exhibition of implements at the Cambridge meeting will be read with interest.

We would, however, suggest that in future it should be made at the same time that the award of prizes for cattle and sheep is announced. It is of no less importance that the best implements should be pointed out at the time, so that persons attending the meeting should examine them, than it is that the best animals should be distinguished. To the manufacturers of implements also, who have incurred expense in conveying them to the meeting, it is equally important that the award of the judges on their merits should be made known immediately. The report to which we allude, distinguishes certain implements as deserving the pecuniary rewards of the Society, but we have not yet heard that any have been awarded to the exhibitors.—*Mark Lane Express.*

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At a monthly council held on Wednesday, Dec. 2, present: the Right Hon. Lord Braybrooke in the chair; Thos. Raymond Barker, Esq.; Colonel Challoner; William Goodenough Hayter, Esq., M.P.; William Fisher Hobbs, Esq.; John Kinder, Esq.; William Woods Page, Esq.; Rev. W. L. Rham; William Shaw, Esq.; William Youatt, Esq.; the following new members were elected:—

Talbot, J., Temple Guiting, Morton-in-Marsh
Shackle, William, Early-court, Reading
Steere, Lee, Tays, Ockley, Surrey
Collis, William Blow, Iwerley Lodge, Stourbridge
Pickernell, John, Little Witley, Worcester
Thompson, William, Great Witley, Worcester
Nicholson, G. T., Waverley Abbey, Farnham, Surrey
Lee, Joseph, jun., Red Brook, Whitechurch, Salop
Walter, The Rev. Keate, Abbott's Ham, Barnstaple, Devon
Roe, John Colville, Lynmouth, South Molton, Devon
Pinnegar, Broom, Newbury, Berkshire
Dudding, J. W., Saxbey, near Lincoln
Cambridge, William, South Runceton, King's Lynn
Rawlins, Robert, Whitechurch, Hampshire
Caparn, Daniel, Horacastle, Lincolnshire
Ireland, James Ireland Clayfield, Bialington, near Bristol
Clifford, Henry Clifford, Frampton-on-Severn, Gloucestershire
Best, George, Compton, Guildford, Surrey
Read, William Pryor, Maldon, Essex
Halley, Francis, Shiffnal, Salop
Johnson, Rev. Henry Luttman, Binderton House, Chichester
Cana, Robert, Marlesford, Wickham Market
Bruch, Charles Cumming, M.P., Dunphail Forbes, N. B.
Flack, William, Waters-place, Ware, Herts
Pyatt, Abraham, Wilford, near Nottingham
Webster, George, Hallfield House, Desford, Leicestershire
Ellis, John, Beaumont Leys, Leicestershire.

PROFESSOR HENSLOW'S LECTURE.

A letter was read from the President, informing the Council of the liberal offer of Professor Henslow, of Cambridge, to deliver a lecture on the diseases of wheat, to the members of the Society, in the week of the Smithfield Show; illustrating his report on that subject in preparation for the new part of the journal, by drawings and illustrations. This offer was unanimously accepted by the council, and Thursday, the 10th instant, at nine o'clock in the evening, was fixed for the delivery of the lecture; members to be admitted by tickets, to be had on applying to the secretary of the society. It was also announced that papers would be read at the rooms of

the society to the members who resorted to them during the four evenings this week they would be thrown open for their accommodation.

AUDIT OF ACCOUNTS.

Colonel Challoner, chairman of the finance committee, read the report of the sitting held that day, recommending their accounts to be audited previously to the general meeting, by the auditors appointed at the anniversary meeting in May last, and agreeably with the terms of the bye-laws.

INDIAN SEEDS.

Reports on the various success which had attended the trials of the Indian Seeds, transmitted in March last to the Society, by Professor Royle, on the part of the East India Company, were read to the Council, from Earl Spencer, Earl of Euston, Sir Samuel Crompton, Bart., M.P., Mr. Sanford, M.P., Mr. Kinder, Mr. T. Raymond Barker, Mr. Woods Page, Mr. William Greaves, Mr. Davenport, and Mr. Dean. Colonel Challoner and Mr. Shaw also gave an interesting account of the success which had attended their distribution of the seeds into various hands, but of which they had not received the final details. All the reports spoke favourably of the pine-tree seeds, and especially of a new clover, which in every case grew most luxuriantly; and, should it stand our climate, is likely to be a very valuable addition to the plants now cultivated for the food of cattle and sheep in this country.

EPIDEMIC.

Communications were received from Sir Samuel Crompton of the progress of the distemper in Yorkshire, from Mr. Atkinson, of Houghton-le-spring, in Durham, and Mr. Porter, of Hembury-Fort, in Devonshire. The noble chairman informed the council that he believed great success had been found to follow an immediate housing of the stock as soon as taken by the complaint. Professor Sewell has presented his report to the Journal Committee.

LICHFIELD ADDRESS.

Mr. Chawner, secretary of the Lichfield Agricultural Society, transmitted to the council the address of the inhabitants of Lichfield and Tamworth, and of the owners and occupiers of land in Staffordshire, approving, in common with the great majority of the farmers of England, of the principles upon which the Society had been established, acknowledging the benefits already derived, and anticipating from its exertions, still more important advantages to the great and varied interests of agriculture; and therefore respectfully requesting the Council to select Lichfield as the place of the annual meeting of 1842, on the grounds that Staffordshire possessed no peculiar breed of cattle, and consequently offered a neutral ground, on which the various breeds of the kingdom might meet in fair competition; that a most convenient site for the operations of the society was presented by Whittington Heath, situate midway between Lichfield and Tamworth, and furnished with every facility of communication by railway and canal; that Lichfield being the central town of England, and surrounded by a manufacturing as well as agricultural population, would afford to the society the best position for making known to both classes the laborious and successful efforts of the husbandman to apply to agriculture those principles of science which have elevated to so high a degree, and are still actively engaged in advancing the manufacturing operations of the kingdom. The address was signed by Earl Talbot, president, and Sir Francis Lawley, Bart., vice-president of the society; by the Marquis of Anglesea, Earl of Lichfield, Sir Robert Peel, Bart., Lords Leveson and Paget, and 700 of the most distinguished and well-known agricultural names in that part of the kingdom; and its consideration stands adjourned until the time when the question of selecting a place of meeting for 1842 was brought generally before the Council.

Communications were received from Sir Charles

Gordon, Bart., Secretary to the Highland Society, on the subject of experimental farms; from Mr. Hooper, Secretary to the Isle of Thanet Farmers' Club, transmitting a copy of their report, and expressing on their part a wish to promote the objects of the Society in East Kent; from Mr. Parkinson, of Babworth, Nottinghamshire, liberally offering, from his own set, to complete the very imperfect copy of Ruffy and Evans's *Farmer's Journal* possessed by the Society; and from Mr. Venable, of Sheerness, transmitting a specimen of wheat ninety years old.

The council then adjourned.

THE GENERAL MEETING.

The General Meeting of the Members of the Royal Agricultural Society of England was held at the rooms of the Society, in Cavendish-square, on Saturday, Dec. 12, at 12 o'clock, when there were present the following noblemen and gentlemen:—

Philip Pusey, Esq., M.P., President	T. N. Catlin
Duke of Richmond	W. Woods Page
Earl Spencer	T. Chapman
Earl Ducie	James Bishopp
Earl of March	S. Jones
Right Hon. Speaker of the House of Commons	C. J. Kendle
Col. Challoner	J. Walker
Thomas Raymond Barker	H. Strafford
Henry Handley, M.P.	Geo. Kilby
J. W. Childers, M.P.	S. Bennett
E. A. Sanford, M.P.	W. Bennett
Rev. W. L. Rham	J. Edmonds
Francis Pym	J. Fulshaw
Sir Harry Verney, Bt., M.P.	H. Faret
W. Shaw	J. A. Ransome
W. Greaves	W. Smart
Thos. Gardom	James Dean
Charles Lees	T. Osborn
C. Whitlaw	John Shelley
Edward Bowley,	W. Trinder
C. Hillyard	John Clarke
T. Inskip	H. Boys
Thomas Derry, jun.	W. Hannam
T. E. Pawlett	Thos. Umbers
T. Pawlett	John Ellman
T. Cobb	H. Ellman
H. Overman	G. Boys
T. A. Champlon	W. Wells
F. Wratistlaw	H. Chamberlain
C. Hill	H. Machin
John T. Carter	Thos. Greetham
Robert Martin	Geo. Swan
W. B. Wiagate	John Wiggins
J. Cheere	James Martin
J. Roper	David Martin
J. Hilton	R. W. Baker
R. Worthington	J. W. Barry
W. J. Pickin	J. Bateman
C. Burness	Jonas Webb
J. White	J. Soames
Thos. Weall	H. Wilson
S. Sandon	T. Knight
W. Fisher Hobbs	John Clutton
C. Boby	I. R. Cooper
S. Druce	John Beasley
John Morton	R. B. Harvey
John Oakley	W. R. Brown
	R. Cobb

The President of the Society, Philip Pusey, Esq. took the chair shortly after 12 o'clock, supported on his right by the Duke of Richmond, and on his left by Earl Spencer.

The PRESIDENT said:—The first business which we have to discharge is to hear the report as to the state of our affairs and accounts, which

has been prepared by the council, read. The Secretary will read the report.

Mr. Hudson then read the following report:—

REPORT OF THE COUNCIL.

The Council, in presenting to the General Meeting their report on the present state and prospects of the Society, have the satisfaction of congratulating the Members on the general and awakened interest now everywhere pervading the agricultural community of this country.

During the last half year no less than 1,400 new Members have been proposed and elected into the Society, and this rapid increase of Members, and extension of the Society, conjoined with the cordial goodwill and co-operation of the local associations and Farmers' Clubs established, and flourishing in every part of the kingdom, lead the Council to anticipate, with well-grounded confidence, the happiest results in the acquisition of sound practical knowledge, and in opportunities of extending the objects and permanent usefulness of the Society.

The success which attended the Society's Annual Meeting at Cambridge, in July, is too recent to require any comment on the part of the Council, but they beg on this occasion to report to the General Meeting that at the first council held after the Cambridge Meeting they had the pleasure of expressing by their unanimous votes the deep obligations of the Society to the heads of the colleges, and the municipal authorities of the town, for their co-operation in promoting the successful issue of the meeting, and in a more especial manner to the Master, Vice-Master, and Fellows of Trinity College, for the liberal use of their Hall for the ordinary on the Tuesday, and to the Master and Fellows of Downing College, for permission to erect on their quadrangle the pavilion for the great dinner on the Wednesday; and to the Mayor and Corporation of Cambridge for their grant of the use of Parker's Piece for the Cattle Show, and for the admirable arrangements they effected for preserving the peace and good order of the town during so extraordinary an influx of strangers on that occasion, and in so perfect a manner that not a single misdemeanour or breach of the peace was reported to the Watch Committee during the three principal days of the Show. They have also had the satisfaction of returning the best thanks of the Society to the Earl of Hardwicke and the Cambridge Committee, for their zealous co-operation in carrying out the various details affecting the success of the meeting, and to those gentlemen who so liberally came forward to offer every facility in the trial of implements, especially to Mr. Grain and Mr. Emson for the use of their land and horses, and to Mr. Bryant, Mr. Witt, and also Mr. Emson, for the gratuitous supply of horses for working the machines, as well as to Mr. Swan of Cambridge, for the offer he made to the Committee of the use of his land for the trial of the subsoil ploughs.

The Finance Committee have been actively engaged in simplifying the mode of keeping the accounts, and thus checking any casual errors which may from time to time arise from the insertion of so large an increase of new members in the Register of the Society, and obviating the temporary confusion which has in some cases been occasioned by similarity of name, and error or imperfection in the address of their residences; and they have recommended that the financial year of the Society shall in future be established, not as formerly, by the irregular periods of the General Meetings, but in half-yearly divisions from January to June, and from July to December inclusively, and the auditors' first balance-sheet will be presented to you under this half-yearly form.

The Journal Committee still feel a strong desire that the parts of the Journal, as published, should reach the hands of the Members in the securest and most expeditious manner, and your President, as their Chairman, has been anxiously occupied during the autumn recess in completing the classed list of those friends of the Society who have kindly consented to act as agents for the distribution of the Journal in every county throughout the kingdom, and in directing the insertion of this list in the

forthcoming part of the Journal, on the eve of publication.

The Council taking into consideration the incalculable national importance of every circumstance affecting the growth and produce of wheat, have requested the members of the Society to transmit for the Museum such specimens as afford a fair average of their peculiar respective districts; and Professor Henslow, Colonel Le Couteur, and Mr. Morton, have kindly consented to act as a Committee of Curators in deciding on the plans to be adopted for the preservation and permanent exhibition of these specimens.

The Council would, in an especial manner, record their sense of Professor Henslow's services in promoting the objects of the Society, in having drawn up and presented to the Journal Committee a valuable report on the Diseases of Wheat, and in delivering to the members an illustrative lecture on the same subject.

The Council have also been desirous of arriving, if possible, at some conclusions respecting the application of Nitrate of Soda as a manure, and although the communications already furnished lead to the presumption of highly interesting principles of organic action and laws of vegetable life, about to be developed from these enquiries, they regard the present state of our knowledge on this subject as very imperfect, and requiring much additional information.

The Council observe, with much satisfaction, that already men of the first scientific character have turned the powers of their minds to the investigation of these interesting but at present recondit laws of Nature; and the celebrated Professor Liebig, of Giessen, has given to the world an important contribution to the Theory of Agriculture. But on this and on every other occasion, the Council cannot too strongly express their conviction, that however splendid, as works of genius, such theoretical disquisitions and deductions may be regarded, the solid advancement of practical agriculture can only be steadily and effectively promoted by sound induction from careful observations and repeated experiment under the most varied circumstances of locality, soil, and aspect; and they trust that the motto of the Society, "Practice with Science," will ever be the guiding rule of its members in their efforts to advance the cause of good husbandry.

The Council have watched with much anxiety the progress of the epidemic among cattle and other stock, now prevalent in so many districts of the United Kingdom; and while in the treatment of this disorder, they have perceived in the remedies proposed the application of no new principle different from that assumed in the Society's original circular,—in its nature, on the contrary, and its mode of action on the living economy they require much further information to enable them to decide on many peculiar points of the disease, and they have, therefore, resolved to circulate among their members a list of such Queries as they trust will obtain a mass of facts which will fully enable them to derive just conclusions on the true nature of this troublesome and injurious complaint; for, although not very fatal in its consequences, its prevalence is the cause of much suffering to the animals, and disappointment and loss to the owners in the depreciation thus occasioned in the value of their stock.

Mr. Hudson also read to the Meeting the financial account of the Society presented by Colonel Chalmers as Chairman of Finance, comprising the Auditor's Balance Sheet, from January to June inclusive, 1840; the Finance Committee Memorandum of the present state of finances (showing a present balance of upwards of 1300*l.* in favour of the Society); and the Finance Committee of Cambridge Balance Sheet. These accounts were most satisfactory, and gave much pleasure to the meeting. The Cambridge balance sheet showed that the total receipts had been 3,415*l.* 10*s.*, and the expenditure 3,589*l.* 2*s.* 2*d.* and that the Cambridge Meeting had thus occa-

sioned a loss of only 173*l*. 3*s*. 2*d*. to the funds of the Society.

The PRESIDENT said:—Gentlemen, the report of the Council just read has entered so fully into our affairs, that I think it unnecessary to say anything with respect to them. If any gentleman has any question to ask me, either myself or some other member of the Council will endeavour to reply, and, if possible, to afford every information that may be required. (*Hear, hear.*)

Mr. RAYMOND BARKER: I beg to move that the report now read be adopted.

Mr. RHAM seconded the motion, and it was carried unanimously.

The PRESIDENT: I think, gentlemen, that it may be interesting to most of you to hear the report of the Judges of the implements exhibited at Cambridge, especially as I do not think that it has yet appeared in the public prints. (*Hear.*)

The President then read the following report:—

CAMBRIDGE MEETING.—REPORT OF THE EXHIBITION OF IMPLEMENTS.

The judges of implements, after having carefully examined such as were exhibited in the show-yard, Cambridge, July 14th, unanimously agreed to a report, which they delivered to the Council on the following morning, recommending to the notice of the Society such implements as appeared to them, from novelty and general utility, to deserve the Society's honorary rewards; and these were as follows, viz.:—

To Mr. Beart, of Godmanchester, for his Tile and Sole Making Machine.

To Mr. Grounell, of Louth, for an improvement in his Dropping Drill.

To Messrs. Garratt, of Saxmundham, for their Corn and Turnip Drill, with moveable axle and swing steering.

To Mr. Wood of Stowmarket, for his Barley Roller.

To Mr. Croskill, of Beverley, for his Clod-crushing Roller and Liquid-manure Cart.

To Mr. Wedlake, for his Corn and Stubble Rake, with balance-weight.

To Mr. Hannam, of Dorchester, Oxfordshire, for his Skeleton Harvest cart.

In justice, however, to the several exhibitors, who, at considerable cost to themselves, had responded to the Society's invitation, and had sent from various quarters of the country such a selection of implements as, beyond controversy, was never before collected in one show-yard, the judges desire to particularize others also, which although on this occasion they were unrewarded, yet are not the less entitled to notice.

At the conclusion of last year's report a hope is expressed that upon a future occasion a still better exhibition may be made than on that their first attempt. That this hope has been realised no one who has had an opportunity of comparing the two can doubt; thus proving that one great object of the Society is in the progress of fulfilment—namely, the producing competition among machinists and the consequent improvement of agricultural implements.

Before proceeding to comment upon the variety of implements which passed under their inspection, the judges beg leave to notice the very great difference that was observable in their workmanship; nor can they forbear expressing an opinion that in general the attention of implement makers has been more directed to novelty and ingenuity of design than to skill in execution. Messrs. Ransome, of Ipswich, however, appeared to them to merit the commendation of the Society, as well for their unrivalled collection of machinery of all descriptions as for the superiority which these machines exhibited in the above noticed particular. A bank of their ploughs (86 varieties) were arranged and elevated on planks to the height of at least 20 feet, and struck the eye of the beholder as he entered the yard; nor did a nearer inspection of them diminish his admiration.

There were three gorse-crushers, but none of them seemed to come within the conditions of the Society's premium of 20 sovereigns, and therefore it was not awarded. Messrs. White and Leith, of Worksop, showed one which might be efficient, but its price would put it beyond the reach of the small farmer. Mr. Dell, of Dudswell, Herts, exhibited one which seemed to possess the merit of simplicity, being worked by the power of an ass, and the gorse bruised by means of a heavy cast-iron grooved roller passing in a rotatory direction over a grooved cast-iron floor. The construction, however, of the machine was extremely incomplete; and the bruised matter produced too insufficient to entitle the machine to reward in its present state. There was one other, manufactured by Messrs. Hurwood and Co., of Ipswich, and to be worked by two men; by this machine the gorse was well bruised, but the labour of the two men was too great to be long sustained, and the quantity produced less by much than that of Dell's.

Of the Drills there was a great variety. The judges especially commended two; one made by Messrs. Garratt and Sons, calculated for sowing either corn or turnips. The improvement effected in this drill seemed to consist in having a moveable axle, whereby when used for sowing turnips on ridges, the wheels may be extended at pleasure, and thus adjusted to the exact width of the ridges. The other drill was made by Mr. Grounell, of Louth; and although rewarded last year by the Society's medal, was considered to be entitled to a similar distinction again, on account of an improvement recently introduced into it, viz., the being made capable of delivering manure, especially when in a damp state, with greater facility and less liability to clog than heretofore. In this respect—and no practical farmer will under-rate its importance—the various other drills which came under the judges' notice were deemed to be deficient. Upon the dropping principle they do not think it necessary to pronounce an opinion farther than to state that it does not yet seem to have arrived at that degree of precision by which alone the principle can be brought into advantageous practice.

The straw-cutting machines were very numerous; the principal implement makers contributing each their several varieties, from the large one, cutting straw from 1'6 to 2 inches in length, and worked by two horses, to the small one cutting one length only, and worked by one man. The judges, however, did not discover any one of a novel principle, regretting very much that Ransome's patent chaff engine, marked A in their catalogue, and for which a patent has recently been taken out, did not fall under their inspection.

Of turnip-cutters there was not much variety; public attention being now apparently confined, in these machines, to two rival principles, viz., that involved in Gardner's patent cutter, in which the movement is cylindrical; and that of Hart's, in which the cutting part is attached to a cast-iron plate, and the movement vertical. It would be well if, on some future occasion, the respective merits of these exceedingly valuable implements were fairly brought to the test.

Of iron rollers there were several: the judges distinguished one, made by Mr. Wood, of Stowmarket, intended for rolling barley or other spring corn, in which there appeared novelty. The roller was in two parts; the one part placed a little in advance of the other, so that in turning the movement of each part is reversed, and thereby an actual saving of power is obtained, and a considerable evil obviated incident to rollers in general, which in turning are apt forcibly to displace the soil and disturb the new sown seed. A clod-crushing roller, made by Mr. Croskill, of Beverley, was also exhibited, which in particular cases has been proved to be a most valuable implement; land the most tough and stubborn, and clots of earth the most unmanageable, being by it reduced to powder. That considerable notice has been attracted to this implement is evident from various causes, especially from the fact of another being exhibited on this occasion, professing to work on the same principle, but in reality being divested of the essential quality of Mr. Croskill's; his clod-crusher consisting of a series of cast-iron rings having a dentated

surface, and hung rather loosely upon an iron axle; and thus in working (and it can only work on a dry soil) an irregular shaking movement occurs, preventing thereby the possibility of any clogging; a fault into which the imitator's seemed liable to fall. Mr. Croskill showed also a liquid-manure cart, which was thought to merit the Society's reward.

There were cake-crushers of various descriptions; one, of the manufactory of Messrs. Bond, Turner, and Co., of Ipswich, was very much noticed: it was made for the purpose of crushing cake, by one movement, for beasts, sheep, and tillage; and this was done by the introduction of two sieves of different dimensions. The linseed cake, by the action of opposing teeth, is crushed into pieces of an irregular size; the largest pieces are caught by sieve No. 1, and thrown out by a spout for cattle; that which is next intercepted by sieve No. 2 is of a size suited for sheep; and the remainder, which has passed through both sieves, may be applied either for tillage or as a mixture with other food.

The machine, however, which perhaps attracted more observation than any other in the yard was a tile and sole making machine, invented by Mr. Beart, of Godmanchester, and was by the judges recommended for the Society's reward; it was stated to be an improvement upon one for which Mr. Beart had recently received a medal from a local society in the county of Huntingdon, and was of an ingenious and simple construction, and its price such as to render it within the compass of any one possessed of capital enough to set up a tile yard; sufficiently portable also to be moved with ease, and without risk of disarrangement.

Messrs. Drummond and Son, of Stirling, showed a variety of implements, chiefly of iron, and well executed. Amongst them was a turnip-scuttler, made with a pair of moveable cast-iron mould-boards; which was perhaps one of the most efficient articles of the many that were shown of a similar description.

In conclusion, the judges can but reiterate the hope of last year, that, under such encouragement as that afforded by the Royal Agricultural Society of England, the advancement of knowledge in agricultural machinery may not be of a temporary nature, but progressive, and be not more characterized by novelty of design than by skill in execution.

Signed by GEORGE LEGARD,
 R. S. GRABURN,
 RD. FLEETWOOD SHAW.

The PRESIDENT said:—I think it necessary to state, that as the Judges have complimented the machines of Mr. Beart most particularly, the Council have inquired into the subject, and it will be noticed in our next number of the Journal of the Society. By this machine the price of tiles has been reduced considerably—as much as from 35s. to 20s. and 22s. per 1000. In some places (the President observed), where coals were dearer than they were in Huntingdonshire, the price of tiles was as high as 50s. and 60s. per 1000. All present well knew, that where tiles were cheap, they were better than stones; and that where tiles were so dear as he had last mentioned, it was almost out of the power of the small farmer to buy them. The reduction, therefore, in the value of tiles was a most important feature. It must be observed, however, that it was not the desire of the Council to notice so directly any speculative invention.

Mr. PYM observed, that the prices of tiles in various parts of the country depended on their size.

The PRESIDENT was fully aware of the fact. The facilities the machine possessed in making tiles, had, however, caused a great reduction in prices.

A MEMBER present observed, that all that was required to make the machine perfect was a better mode of stamping.

Earl SPENCER said,—Mr. Pusey, I am desirous

of offering myself to you on the present occasion as being one of the Stewards of the Yard at Cambridge, and therefore an attentive eye-witness to the pains that were taken by the Judges in the execution of their duty. (*Hear.*) No persons could take more pains, I am sure, than they did, to do their duty well. It is a disagreeable office to be Judges on such an occasion, as they are liable to some criticism from the disappointed (*hear.*); and if they make a mistake they are severely criticised. (*Hear, hear.*) If, indeed, they make no mistake at all, they are liable to criticism. (*Hear.*) On the present occasion I am sure the Judges took all possible pains to do their duty, and their decisions have, I believe, given general satisfaction. (*Hear, hear.*) That being the case, I feel it is due to them, from this Society in General Meeting, to give them a vote of thanks. As I have said before, the office of Judge is a disagreeable office, and we ought to be very thankful to any gentleman who will undertake it (*hear*).—In proposing to you (continued the noble Earl) to give them a vote of thanks for their services, I will say a few words on the state and prospects of the society, and these are very good. We have done much already; but the main good we expect from its establishment cannot for some time be obtained. Some years must, in fact, elapse before all the good we expect from the Society can be realised. We have, however, laid the foundation, and a spirit of investigation too, and enquiry has been already excited which must lead to good. We find that in very many parts of the country the farmers will improve and make experiments on the land in order to benefit themselves. We are not desirous that experiments should be tried on such a scale as to be injurious to the pockets of the farmers (*hear*). It will not be our doctrine to hold out that these experiments should be carried to such an extent, that if foiled, they would occasion the loss of a great deal of money. (*Hear.*) The object is, they should be on a small scale. It is as advantageous to know what will not, as it is to know what will do. (*Hear.*) We shall have practical knowledge extended by this society throughout the country. This has not been the case as yet. We have no right to expect that either by words or figures any great practical benefit to agriculture should have yet resulted. Yet still we have excited a spirit of enquiry and investigation which must tend to good. I beg to move a vote of thanks to the judges at Cambridge.

Mr. PYM seconded the motion, and said that as one of the stewards of the yard with his noble friend Lord Spencer, he could bear testimony that every thing was conducted by the judges with caution and with perfect fairness. I therefore (said Mr. Pym) cordially second the vote of thanks to the judges, to whom they are justly due.

The PRESIDENT put the question, and it was carried *nem. con.*

E. A. SANFORD, Esq., M.P. said it was necessary that they should recollect those gentlemen who have undertaken the office of auditors of the accounts of the society. (*Hear.*) It was absolutely necessary to appoint gentlemen whose knowledge of accounts as auditors gave confidence to the subscribers, that their money was properly applied to the purposes intended. He would therefore propose that the auditors be re-appointed—viz., Mr. C. Hampden Turner, Mr. Thomas La Coste, and Mr. John Knight.

Mr. RAYMOND BARKER, in seconding the resolution, explained the reasons why the Council had altered the period for the balancing of the accounts

of the society as stated in the Report of the Council. He fully hoped that the accounts next year would be as full and satisfactory as the subscribers could wish. There had been unforeseen hindrances to effect this before, but now a system had been devised for which it was fully expected that no hindrance would take place in future. He hoped and trusted that the society would rapidly advance in public confidence, and that a still more liberal subscription would be raised than they now had.

The resolution for the re-appointment of the Auditors was then carried.

The Duke of Richmond—Mr. Pusey, it is not my intention to offer more than very few remarks. We owe, however, much to Professor Henslow, for his paper on the Diseases of Wheat, and also for his lecture on the same interesting subject. I therefore propose the thanks of the society to the learned professor. (*Hear.*)

Lord Ducie seconded the proposition.

The President, in putting the resolution, observed, that there were many of the members present who heard the lecture, and he could say all were very much pleased with it. (*Hear.*)

The vote of thanks was carried unanimously.

HENRY HANDLEY, Esq., M.P.—I am sure I shall stand excused in rising to propose a vote of thanks to our excellent President. (*Cheers.*) The last time it fell to my lot to pay him a similar compliment (at Cambridge), it will be recollected by those present, that when I moved the vote of thanks to Mr. Pusey on that occasion, I had not so silent an audience as I have now. Their excellent president had brought his talent to bear on the important subject of the improvement of agriculture, and had been indefatigable in the cause of the Society. I shall propose the thanks of the meeting to him for the very able manner in which he has performed the business of the meeting on the present occasion. (*Hear, hear.*)

EARL OF MARCH.—I have much pleasure in seconding the resolution.

The Duke of Richmond then put the vote of thanks to the Meeting, and it was carried unanimously.

The President—I beg to thank you most sincerely for the honour you have done me. Mr. Handley thinks it a benefit to have a silent audience on the present occasion, but how much more may I have hoped for it, who have not half his power. I feel pride and gratitude for having been allowed to fill the chair during the past year. There is nothing which to us is of greater interest than the facilities which it will give us to have communication with the farmers of this country. I have never asked for information from them without having obtained it, if it was in their power to give it; I am therefore greatly indebted to them.—I wish to mention one subject which I think was omitted in the Report. It was with reference to the Veterinary College, and the steps that have been taken to carry into effect the objects of the Society with respect to it. The annual grant appears large,—it is 200*l.*, but it is not too large in proportion to the object to be obtained. Professor Sewell had attended the Committee, and stated the causes that had rendered it as yet impossible to carry out the objects contemplated,—that of having repositories of sheep, cattle, and horses. Gentlemen are aware that to obtain a knowledge of the diseases of the human frame it was necessary to have an inspection of the purpose, and so important was it to form hospitals for the subject, that when it was decided to form medical classes in our two Colleges in London, hospitals were founded by each. The Veterinary College stables had not been successful for the purposes intended—it was not only necessary to

see the living animal, but to dissect it when dead, in order to obtain a knowledge of the disease with which it was afflicted. There had been a great difficulty in obtaining subjects, but Professor Sewell had not been daunted by difficulties, and he had communicated his intention to provide the funds out of his private fortune to open a hospital where persons might be instructed in the diseases of cattle, sheep, and pigs. He has given a pledge that he will do so, and he also undertakes (what is of very great importance) to give testimonials to those pupils who demanded them of their knowledge of this subject, if they shew their competency. It was not intended to make it compulsory on parties to take testimonials as to their talent in this particular department of professional study, but when in the country, if our cattle are bad, and one person has a certificate for proficiency in the study of disorders of cattle, and another only for the disorders of the horse, then we shall well know who to apply to and employ.—(*Hear, hear, hear.*)

The business of the Meeting having been transacted, the President left the chair.

At a council held on Wednesday, December 9th; present—Philip Pusey, Esq., M.P., President, in the chair; his Grace the Duke of Richmond, Marquis of Downshire, Earl Spencer, Hon. C. G. Noel, M.P., David Barclay, Esq., John Raymond Barker, Esq., Colonel Challoner, C. Hillyard, Esq., W. Fisher Hobbs, Esq., Samuel Jonas, Esq., Rev. W. L. Rham, Edw. Ayshford Sanford, Esq., M.P., William Shaw, Esq., and William Youatt, Esq.;

The Rev. Professor Henslow, of Cambridge, on the motion of the Duke of Richmond, seconded by the Marquis of Downshire, was unanimously elected an Honorary Member of the Society.

The following gentlemen were elected Members of the Society:—

Newburgh, the Earl of, Hassop Hall, Bakewell, Derbyshire

Cox, Henry, Treverux, Lympsfield, Surrey
Cole, Charles, Gorse Hall, near Kidderminster
Davies, Henry, Blakebrook, near Kidderminster
Styles, Ferdinando B., Offmore Farm, near Kidderminster

Adams, James, Wolverley, near Kidderminster
Slator, Edward, jun., Preston, Wingham, Kent
Stuart, Henry Pett, St. Nicholas, Thanet, Kent
Arch, John, Clifton, near Shefford, Bedfordshire
Wells, Henry, Sheuditch Farm, Hemel Hempstead
Dell, Thomas, Broadway Farm, Hemel Hempstead
Hunt, John, Thorington, nr. Wooler, Northumberland
Thompson, John, Hawston, near Wooler, Northumberland

Smith, Th., jun., Bucton, near Belford, Northumberland
Nairn, Philip, Warren House, near Belford, Northumberland

Fawdon, Jas., Tughale, near Alnwick, Northumberland
Storey, Ralph, Beanley, near Alnwick, Northumberland
Robson, John, West Chirton, Newcastle-on-Tyne
Ford, Richard S., Clifford's Wood, Stone, Staffordshire
Scott, John, Harley Thorn, Stone, Staffordshire
Warner, James, Sandyford, Stone, Staffordshire
Meredith, Rev. Edward, Newport, Shropshire.
Shearn, Edward, Stratton, Cornwall
Gurney, John, Towcester, Northamptonshire
Heelis, Thomas, Skipton Castle, Yorkshire
Walker, David, M.A., Colchester, Essex
Nunn, Carrington, Little Bromley Hall, Colchester
Taber, James, Lawford, Colchester
Sykes, John, Sudbury, Suffolk
Green, Hugh, Newton, Sudbury, Suffolk
Downes, William, Dedham, Essex
Swan, George, Garnston, Retford, Nottinghamshire

ANNUAL COUNTRY MEETING OF 1842.

Earl Spencer gave notice that he should move, at the morning council in the first week of February next, that

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the place for the country meeting for the year 1842, should be then taken into consideration.

REPORT TO THE GENERAL MEETING.

The council having proceeded to the consideration of the business at the ensuing general meeting on the 12th, unanimously agreed in their report on the present state and prosperity of the society, to be presented to the members on that occasion.

EPIDEMIC AMONG CATTLE.

The Council passed a resolution that the Veterinary Committee should be requested to draw up a list of queries on the symptoms and mode of treatment of the Epidemic, and that these queries should be transmitted by post to every member of the Society throughout the kingdom, for the purpose of obtaining, by their aid, such a mass of facts as will enable the council to draw sound and practical conclusions on the nature of this disease.

The Hon. Robert Clive has informed the Society that the state of the health of the stock in Shropshire is generally good, but that some instances have shown themselves of the prevailing disorder, where cattle have been brought in, and the mischief, by timely aid, thus checked: that no deaths had occurred, and no alarm been occasioned; much caution, however, has been exercised in the strictest manner.

CAMBRIDGE BALANCE-SHEET.

Colonel Challoner presented the balance-sheet of the Cambridge accounts, which satisfactorily showed a balance against the funds of the society of only 173l. 5s. 2d.

SPECIMENS OF WHEAT.

The President communicated Professor Henslow's suggestions respecting the mode in which the specimens of wheat should be preserved, and the council issued directions that the plans proposed should be carried into execution.

The President and Mr. Morton presented some specimens of wheat to the society.

SPECIMENS OF WOOL.

The Duke of Richmond presented to the Society, on the part of Charles Dorrien, Esq., of Lavant House, near Chichester, three fleeces of English merino wool from his own flock.

Mr. Hobbs presented a framed print of his Hereford prize steer, which won the first premium and silver medal in Class III., at the Smithfield Show last year.

On the evening of the same day, Earl Spencer and Mr. Pusey read papers to the Members of the Society; and, on Thursday a meeting was held of the Journal and also of the Veterinary Committee, and Prof. Henslow delivered his lecture on the Diseases of Wheat to the members in the evening; on Friday the meeting of the auditors of accounts took place; and during the four evenings of the week, the rooms of the Society were thrown open for the accommodation of those members who visited town for the Smithfield Show, and were attended by the President, Mr. Pusey, the Duke of Richmond, Earl Spencer, Earl Ducie, and many other leading members of the Society.

The Council is understood to stand adjourned until the first week in January.

THE FARMERS' ALMANAC. London: Ridgway. Worcester: Deighton.—This is one of the best publications of the kind among the many which issue from the press at this time of the year. No agriculturist who has occasion for a hand-book of reference should be without it. The farming and horticultural hints are most useful; and to each month in the year is appended a descriptive sketch which attaches considerable merit to the author, who has brought together in a small compass much that is valuable and interesting in relation to the history and characteristics of every month. A list of all the fairs held throughout the United Kingdom, names of the M.P.'s, public agricultural societies, and a mass of information which cannot now-a-days be easily dispensed with, will be found in the pages of this comprehensive and excellent almanac. — *Worcester Journal.*

ON FARMERS' CLUBS.

TO THE EDITOR OF THE CAMBRIAN.

SIR,—It is almost impossible to overrate the advantages of these excellent institutions, which I am happy to see so greatly increased in numbers during the last two years, at least in this East Anglian district. Wherever they have failed, or shown any symptoms of declining interest,—as has been the case with one or two I could name, but will not—it may be clearly traced to the apathy or neglect of those who ought to be at the head of the institution, and not only by their presence, but their general activity at the different meetings, induce others to attend, and take a part in the subjects brought forward for discussion.

We will take the respective officers in the order they stand, and first,

THE PRESIDENT,

who ought to be a person well versed in rural affairs, something more than a mere chairman of a meeting; one who, if he does not speak on every question, from a wish that others should lack no opportunity of delivering their sentiments, yet is competent to speak on all, if by so doing he can elicit information from the more timid, though probably not less able practitioner. He ought, to a certain extent, to enforce discipline and regularity at the several meetings; for instance, every speaker ought to rise whenever he addresses the meeting; and any infringement of this rule ought to be particularly noticed from the chair, for, trifling as its observance may appear, no one thing conduces more to the preservation of order, and the consequent success of the club. Without it, all would soon become lax—each member, pipe in hand, would be talking to his neighbour, and the whole thing would soon become a mere smoking and drinking party. The President, more than any one else, has the power to prevent this, and in so doing he not only keeps up his own dignity, but the respectability, and I might say, the success, of the institution.

THE VICE-PRESIDENT,

in the absence of the President, of course, takes the chair, and therefore the duties of the one will then devolve on the other; but even in the presence of the Chairman he may, by taking part in the business of the evening, and otherwise, do much to promote the welfare of the society. One thing ought to be clearly understood by both President and Vice-President, that they are not to make their offices a pretence for either idleness or lukewarmness. There should in these as in more important establishments, be no more cats than catch mice. Some I have known, but the instances are fortunately rare, who neither catch themselves, nor let others catch. We have last, but not least,

THE SECRETARY.

Well may I say not least, for in truth I believe him to be the most important personage in the club. He is the main-spring, the very life and soul of the whole thing. Others attend for their pleasure, and fancy they do much if they sit still during the discussions. But, to the Secretary, this is not only a business, but often a very troublesome business; for on him devolves the duty of calling the members together, of seeing, when met, that suitable subjects are provided for discussion; and of condensing the substance of what may be uttered into a form that may be both instructive and interesting as a general report of their proceedings. If there be, as there ought to be in every Farmer's club, a library for circulation among the members, the care and delivery of the books devolve on the Secretary, who, if he have the good of the cause at heart, will, in reason and out of season, asked or unasked, take care that each member has his fair quantum of reading, or at all events, the means of reading; for the inclination to read rests not with him, but themselves. I know more than one active Secretary, whom I feel strongly inclined to name, but dare not, lest they should "blush to find it fame." In short, the President may be an able man, the Vice-President as able as the President, but the

Secretary is the workman of the firm. He is the Atlas, on whose shoulders rest the main business of the Society. Show me a good Secretary, and I will show you a good Farmer's Club.

One word to the members generally. They may have zealous efficient officers, but unless those officers are supported by the zeal and attendance of individual members, "it profiteth them nothing;" but I am willing to hope that such instances of apathy or neglect are rare. The mere bearing a discussion on a subject of interest to the practical farmer begets a wish to be present at the next meeting. The taking a part in such discussion implies a necessity to look into books for information on the particular point in question. The looking into books for particular purposes, by degrees, induces a love for general reading—the mind is expanded—the ideas become liberalized; a sure and certain effect of the interchange, and, perhaps, the collision of sentiments, thus brought about by the agency of FARMERS' CLUBS!

I am, Sir, your obedient servant,
SAMUEL TAYLOR.

Stoke Ferry, Norfolk, Nov. 19, 1840.

ON SINGEING THE COAT OF THE HORSE.

BY MR. W. TITCHMARSH, BISHOP'S STORTFORD.

At the commencement of the year 1838, I submitted to my professional brethren an instrument for the purpose of shortening the coat of the horse, by singeing, or the application of flame. The instrument is so formed as to press down the coat, a comb following, above which is a grove containing cotton that is to be moistened with naphtha, then ignited, and quietly drawn over the coat. By repeating the operation occasionally, the coat may be kept at any length the owner may deem requisite.

It is a fact well known to those who may have the care of horses, that they can perform double the work required of them, and with greater ease and comfort to themselves, when the coat of hair is reduced to about that length in which it is found upon them in the month of July, than they can with the lengthened coat which nature has given to them as a protection from the rigours of winter, but which protection is not required in the present domesticated state. The hunter with a short coat returns to his stable after ever so fatiguing a day, and is dressed and comfortable in a very short space of time: while the long coated one, on the contrary, continues in an uncomfortable state for several hours, in defiance of rubbing and clothing. The perspiration saturates the clothes, and renders the atmosphere damp and unfit for him or any horse to breathe. It rapidly throws him out of condition and predisposes him to disease.

When clipping is resorted to, and the horse is taken as much care of as a hot-house plant, it is productive of considerable advantage: but the clipped horse who has not this care taken of him, from the sudden exposure of the skin—the functions of which are so important in the animal economy—becoming suspended, is very liable to become seriously diseased, and particularly to have fatal affections of the lungs.

I consider singeing to possess the following advantages—the taking off a small portion, and, at the same time, sealing up the pores of the skin, and preventing the access of cold. It is also a very great economy in the application of shortening the coat.—*Veterinarian.*

TO THE EDITOR OF THE MARK-LANE EXPRESS.

SIR,—In reply to Mr. Mackenzie's letter published in your journal of Monday last, I beg to state that I do consider there is a considerable escape of carbonate of ammonia from farm yards where cattle are fed during winter. As putrefaction goes on so carbonate of ammonia is generated, (whilst nitrogen remains in the compound), which is held in solution in the water present, and as the water evaporates so does the ammonia with it. Therefore we cannot apply gypsum in too early a stage of the decomposition, after which the same loss would result if water were allowed to drain from the yard without being used as manure.

All dung piles ought to have a body mixed with them having greater affinity for ammonia than carbonic acid, or else a great part of the ammonia will be lost; but if it be applied in the farm-yard, in sufficient quantity, it need not be applied afterwards.

I believe with your correspondent, that "these things are of importance," and not so much attended to as they ought, for I have seen men and horses toiling up the hills with ponderous loads of (so called) manure, when in fact very little manure existed in it, whilst they leave the most valuable manure scattered about their farm-yards and fields fermenting and dissipating in vapour, "carried away upon the wings of the wind," serving their neighbour's purpose as much as their own.

I am a great advocate for using manure as early as possible, that its decomposition takes place in the earth in the midst of vegetation, and none of its elements would be lost. Thus the death and dissolution of the present generation would spring up into life in a new one.

I am Sir, your obedient servant,
Wadebridge, Dec. 9. GREGORY BRADY.

THOROUGH-DRAINING.

SIR,—Having read Mr. Smith of Deanston's pamphlet on thorough-draining, and as there is some diversity of opinions as to the main-drain, I am anxious to call that gentleman's attention again to the subject through the medium of your valuable journal. We all agree as to the longitudinal system of draining being far preferable to the cross drains; we are agreed also as to the depth the frequent drains ought to be cut, and the materials to be used, and the manner the drains ought to be filled up; but there is a difference of opinion as to the necessity of a main drain at all. I know an experienced agriculturist, who, where he can, runs each longitudinal drain into the ditch or open course as the case may be, thereby doing away with the necessity of a main drain altogether. It is agreed that this plan is preferable, as in case of any of the drains being stopped, by examining each single mouth you would know which it was; it is therefore on the practicability or not of main-drains that I am anxious to elicit information; as far as my own experience goes, I am decidedly in favour of main drains in all cases, so that if I could, and the field I was draining admitted of it from its declivity, I would so arrange my main drain as to have but one emptying place for the drainage of the whole field.

I also wish to enquire from Mr. Smith if he still advocates the system recommended in his pamphlet, of partially filling up the drains with broken stones, and thereby doing away with the necessity of using single tiles? A STAFFORDSHIRE FARMER.

Draycot, Dec. 10.

TO PHILIP PUSEY, ESQ., M.P.

PRESIDENT OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

SIR,—The interest you have already shown on the subject of ploughs, and the trials which have been made under your superintendence, together with the official situation to which you have been unanimously called as President of the above Society for the current year, have induced me to address these few observations on ploughing to you. They may be considered as a continuation of my former paper on ploughs, which appeared in the Mark Lane Express on the 29th of June, and in the Farmers' Magazine for July last, and which I had great pleasure in submitting to your consideration last spring. And as in reply to my communication you did not disapprove of my theory, or object to such discussions, if conducted in a friendly manner, I am encouraged to request your further notice, while I endeavour to explain my view of the subject in the spirit which you recommend.

The Kent turn-wrist plough, which Mr. Balls Garrett, of Maidstone, exhibited at Cambridge, was made under my direction; and as it is the custom in many parts of Kent to plough the land from six to eight inches deep, the plough in question was constructed for that purpose.

It may not therefore appear strange to persons used to Kent ploughing, if an instrument thus prepared should seem to execute its work less perfectly when required to have its powers limited to four inches in depth, than if allowed to take its intended course.

The observations I was enabled to make in passing through the county of Essex, in my way to the town of Cambridge, the remarks also of several gentlemen with whom I conversed, were to the effect that the general practice of ploughing in the aforesaid county as well as in that of Cambridge, was from three to four inches in depth of furrow, and as that of Kent is about twice as much, it appears necessary that while considering the quality of the instrument employed in the work, it is equally necessary to ascertain (as far as may be) what that instrument has to perform.

If the general work of a plough is to be limited to a depth varying from three to four inches, it certainly is not necessary to bring to that work the power possessed by the Kent plough; for to employ a four horse power where two only is required, can only be throwing labour away.

The ploughing match at Cambridge, where upwards of fifty ploughs were engaged, was to be characterized as three and a half inches in depth upon an average; of course two horses were amply sufficient for the work.

The Kent plough in such a case could not contend on equal grounds with those, being constructed for a different purpose, but had the said ploughs been required to do their work at a depth of six inches, the result it is apprehended would have been widely different.

The question therefore appears to turn upon this point; is such ploughing conducive to good husbandry, or is six inches more desirable to attain that end? If the former, then a Kent plough of such powers and dimensions as that exhibited at Cambridge is unnecessary, but on the other hand, if the latter is better adapted to effect that object, (particularly in unbroken land) then the Kent plough can do its work, while its competitors will generally fail.

The principle contended for in my former paper, in reference to the form of ploughs, has not as yet

been proved erroneous, and as I believe it to be founded in truth and experience I do not think it likely to be so; under all these considerations, I have had a plough constructed upon a reduced scale, (yet adhering strictly to the principle laid down) in order to try a few experiments upon the shallow ploughing system.

The resistance offered to a plough in removing a given quantity of earth a given distance may be calculated, if not with certainty, at least with some approaches to it; and as it has been shown in my former paper, that a furrow six inches in depth and nine in breadth, requires fifteen inches to turn in, as it is considered indispensable in all cases, that to have the furrow properly turned, the opening must be equal to the depth and breadth added together—so by this rule it is clearly seen that twelve inches is sufficiently wide when the depth is reduced to three.

In calculating the power required in the two cases to remove the furrow proposed for each, let a section be taken of the furrow, six inches deep and nine wide, which is to be removed fifteen, thus:—

$6 \times 9 = 54 \times 15 = 810$, the power required.
again: $3 \times 9 = 27 \times 12 = 324$, the second do.

The comparative power therefore is as 810 to 324, or 5 to 2.

The Cambridge ploughing, at three and a half inches, compared with the Kent ploughing at six, will appear thus:—

$3.5 \times 9 = 31.5 \times 12 = 378$ or 7 to 15.

If the furrow is four inches deep, the opening must be thirteen inches, thus:—

$4 \times 9 = 36 \times 13 = 468$ or 52 to 90.

If five inches deep it must be opened fourteen inches, thus:—

$5 \times 9 = 45 \times 14 = 630$, or 7 to 9.

The importance will thus be seen of deciding upon which of the two methods of ploughing good husbandry depends, and which is to be considered efficient.

It has been a received opinion, and one that still prevails to a great extent, that the two-horse plough, which I shall hence distinguish as the *shallow-plough*, performs the same quantity of work as the Kent turn-wrist or deep one, and therefore requires but half the animal power which is applied to the latter instrument.

This subject should be well considered, as important consequences depend upon its being fully understood.

An able and judicious friend of mine, who accompanied me to Ipswich, and assisted at the ploughing which is hereafter described, has with me gone fully into the details of the subject, and the result appears to be, that the surface ploughed by the shallow ploughs in comparison with the deep ones is as four to three; but as the lands where the former are used, requires four acres to be ploughed to three of the latter, the equilibrium is again restored. This will appear by the necessity of extra fallow being needed where the shallow ploughs are used, as will be found in the comparative modes of cultivating one hundred acres.

The course of crops adopted in the neighbourhood before referred to, with the shallow plough is in the *four-course*, so that in one hundred acres, twenty-five are fallow! Whereas in the other the *seven-course* is generally practised, in which fourteen and a fraction only are fallow. The deep ploughing here has an evident advantage, in that, only four acres of fallow are required to seven of the other!

This it is apprehended also accounts for the *fact*, that in the system pursued with the deep plough,

the animal power appropriated to one hundred acres doth not exceed that required by those who adopt the shallow one, which was fully proved to be the case, by the actual practice of those gentlemen in the county of Suffolk, who gave the aid of their experience to this enquiry.

The deep plough, by facilitating the operation of the broad-share and scarifier, is by far the best adapted for removing weeds; and I am of opinion that the Kent farmers with the deep plough, would not be shamed by a comparison (in respect to freedom of weeds) with those of any other county in the United Kingdom. It may also be reasonably inferred that the sub-soil plough is most desired, and is chiefly successful where the shallow plough is used, from which I am led to conclude that the advantage of the deep plough is fully equivalent to any that can be derived from the subsoil plough by those who use the shallow one.

The following trials have been made.—In the neighbourhood of Ipswich, on the twenty-ninth and thirtieth days of October last, several ploughs were assembled in a field belonging to Mr. Arthur Bid-dell of Playford, and the ploughing tested by the Dynamometer, which gave the following results.

The Kent turn-wrist plough built on the reduced scale, at five and a half inches depth, and nine and a half breadth of furrow, required a power equal to three and a half hundred-weight.

The Rutland plough, at the same depth and breadth of furrow required a power of three and a quarter hundred-weight.

The E. C., an improved Suffolk Wheel plough, at six inches depth and nine and a half breadth of furrow, required a power of three hundred-weight.

Several other ploughs were tried, but their results being nearly similar, it is not necessary farther to particularize them.

In the above trials, which were made in the presence of several practical and eminent agriculturists, with the assistance of those distinguished machinists, the Messrs. Ransome, it was admitted, that the additional power which the Kent turn-wrist plough required, was fully accounted for by the increased distance to which the furrow was removed in order to complete the turning which it consequently obtained; so that had the furrow been removed to an equal distance by those marked with the lowest power, and been as completely turned, it is presumed that the variation would have been unworthy of a marked difference, if it had not been in favour of the other.

I shall now endeavour to shew that on dry land, the advantages of the deep, or Kent turn-wrist plough, are important. First, the land is laid perfectly level, no open furrows are needed, and the land is *all* ploughed; whereas, with the fixed breasts and round ploughing, the centre of the *stetch* remains untouched to the breadth of ten inches, which is equal to one acre in twelve; the open furrows are nurseries for weeds, particularly that troublesome weed, couch-grass, the usefulness of the broadshare and scarifier are greatly impeded; and finally, the crop of corn, having great variety in the depth of soil, is unequal and consequently, injuriously affected.

Secondly, the ploughing with the fixed breasts is less efficient in the operation of turning the narrow bottom of the plough, and of the opening which is required for the furrow, renders it difficult, indeed impossible, to turn the furrow completely over, unless the depth thereof is so reduced that it cannot be considered efficient work! Should the land be ploughed to the depth of six inches, the first motion of the furrow, (that of bringing it on its edge) so

nearly fills the space it is intended to occupy, that it cannot turn over, but remains leaning over at an angle (with the plane of the horizon) of forty-five to fifty-five degrees; this leaning over, be it observed, *must* vary according to the depth of the ploughing; should that depth be increased to nine inches, the furrow *must* be left at right angles with the surface, and so in proportion, because the thickness of the furrow will completely fill the opening, and no room will be left for turning further than on the edge.

Thirdly, the smallness of the angle and the straight lines of the *wedge* in the Kent turn-wrist plough, have, I believe, proved themselves capable of doing all that has been claimed for them, to the satisfaction of many gentlemen of Suffolk who witnessed the trial, and of whose competency to form a right judgment no one can doubt.

I have therefore only to observe, that the objections proposed in my former paper to the short, fixed, curved breasts are fully borne out.

I beg in conclusion to offer my sincere thanks to Messrs. Isaac and Joseph Everett, George Gale, Robert and Henry Skeet, James Neave, Robert Lacey, William Hayward, and others whose names I regret to say have escaped my recollection, for their kind assistance both at the trials, and in the discussions that followed: and above all, to those energetic, liberal, and public-spirited gentlemen, the Messrs. Ransome, for the great assistance they gave, not only in providing a field and obtaining horses and implements, for trial, but also in many other things too numerous to mention. I am, Sir, with great respect, your humble servant,
Rainham, Kent, November 10. WM. SMART.

ISLE OF THANET AGRICULTURAL ASSOCIATION.—At the late meeting of this society, a tribute of respect was paid to the Secretary, Mr. Perkins, we extract the following from a report of the proceedings in the *Kentish Gazette*:—The Chairman was about to propose a toast; at the same time he would address a few words to a friend to whom the institution had been from its infancy much indebted. He came to the name of the single individual upon whom the working of the machinery of the institution devolved, in proposing the health of their secretary, Mr. Perkins, (*loud cheering*), whom he requested to accept a small tribute of gratitude from the members of the society, which he had much pleasure in being made the channel of presenting. The tribute was made up from many small subscriptions, and was offered for his acceptance with the sincere and cordial thanks of the institution, for his unremitting and valuable services. (*Loud applause*).—Mr. Perkins said it was with feelings of great embarrassment that he rose to thank them very sincerely for the kind and flattering compliment they had paid him. It was now eight years since he had come to reside in the neighbourhood, and he was surprised at being early solicited to undertake the secretaryship of this institution. He had concurred in the wishes of his friends, because he conceived the object to be of great importance to all classes of the agricultural community. The confidence then placed in him by the association enabled him to appreciate their kind motives in acknowledging his humble services by a tribute so grateful to his feelings. He could assure them he should cheerfully continue to render every assistance in his power, to the promotion and success of the society. (*Loud cheers*).—[The tribute was a splendid silver tea pot, beautifully chased, and a salver, and bore the following inscription:—"This tea-pot and salver is presented to Mr. William Perkins, for his valuable gratuitous services as honorary secretary to the Isle of Thanet Agricultural Association, December, 1840."]

MANGEL WURZEL AND SWEDISH TURNIPS.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—I should not have sent you this letter had I not considered my system of taking up and preserving mangel wurzel and Swedish turnips more economical and therefore a better system than either of the answers to "A Constant Reader," on the above subject, in your valuable magazine for the present month. I am aware it is too late to be of service to the farmer this season; but it may prove a benefit for the future. I have generally grown from 5 to 10 acres per year, for more than twenty years; therefore you will perceive I have had some little experience.

To the first question I would say,—the middle of November is the best time for taking them up; if a mild growing autumn, I have let them stand until the latter end without any injury: they will bear a good deal of frost without being spoiled, but I think a severe frost deteriorates the quality; certainly it is not a good plan to take them up in a frozen state. About a month before I want to take them up, I stock the tops with cull or drapewees; if any of them have teeth long enough to bite the root, I break or cut them off with a small sharp pair of pliers (they are termed cutting pliers), and if properly done the greater part of them will snap off like a piece of glass. The ewes will very much improve in condition. If it is not convenient to stock them, I employ women to break them off by taking hold of a portion with each hand and bending them downwards, which is much better than cutting them, as by cutting you are likely to injure the crown. I drill them on ridges, twenty-seven inches asunder, and after the tops are clear off, and I am ready for carting, I run a skeleton plough under the ridges, which leaves most of them standing where it found them, taking care to plough sufficient depth not to cut the root. After this process, if they are of the right kind—that is, long and clear, with very little fange—two men and two women will throw half a dozen rows into the cart quite as fast as three carts can get them away, even if they are graved or piled in the same field, which is my usual practice. It will require one or perhaps two men to pile them as they ought to be piled with their crowns outside. My graves are piled on the level surface in a triangular form, six feet wide by six feet high; thatch them with stubble, and heap them up with earth, one foot at bottom and six inches at top, taking care to leave the top open for a fortnight or more. For want of this precaution, a neighbour of mine had a severe loss last year, while I had not one in a hundred the least injured.

To the last question I should decidedly say, the little earth that comes up with them will do more good than harm. If you have been in the habit of growing the short fangy sort, change your seed, for I would not grow them if you would give me the seed.

The foregoing remarks will apply equally for Swedish turnips. I drill mine on ridges twenty-four inches asunder, and if I do not top them with the ewes that have been on mangel wurzel tops, I set a man to work with a small hoe,—if he is active he will cut them off nearly as fast as he can walk; then run the skeleton plough under the

rows, the tap root will be cut off, and they will be ready to throw into the carts at less than half the expense of throwing them in rows, then topping and tailing. I use one of Ransome's N. L. ploughs, with the mould plate taken off, and as I have no stones, I use a wrought-iron share with a wing ten inches wide, and the edge stealed to keep it sharp. To those who drill on the flat I would suggest a system that has been found to answer well in this neighbourhood; that is, to drill two rows at nine inches, then a space of twenty-four inches, again two at nine inches, &c.; by so doing you may use the ridge plough in the wide rows, which will cause the turnips to grow more freely and be fit for the hoe several days earlier; they will be more effectually cleaned, and at less expense.

I will here recommend the universal plough or ridge scarifier, manufactured by Messrs. Ransome, of Ipswich, and shown at the Cambridge meeting, in July last.

I cannot close without mentioning a circumstance that occurred a few days back. A gentleman from this neighbourhood met with some friends, who reside on the western side of that celebrated turnip county, Norfolk,—their conversation turned on the storing of turnips, and as the one from this neighbourhood was at that time taking up a very good crop, estimated at near forty tons per acre (part of them have been measured and weighed), he gave them a full account of his method and expense, which was in accordance with the foregoing remarks, and his whole cost of topping, tailing, filling the carts (one-horse carts), and gravings in the adjoining field, amounted to the sum of eight shillings per acre; while that of his friend in Norfolk, on a principle, I suppose, similar to the "Border farmers," amounted to twenty-five shillings per acre. Some allowance is to be made for the Norfolk farmer having to employ an extra man or boy and cart on account of distance, but that merely makes at the most two shillings per day difference, as I believe horses were not included in either case.

Mr. Editor, I will leave your readers to judge for themselves which of the systems are the best, and if I have not been sufficiently explicit, I shall be very ready to answer any questions, so far as my experience will allow me, and subscribe myself

Your obedient servant,

Lincolnshire, Holland, Dec. 17th.

S. L.

THE EPIDEMIC.

SIR,—As the Epidemic has just broken out among our stock in this county, and as consequently we have had little experience concerning it, perhaps some of your Southern correspondents will be kind enough to answer me the following queries:—Whether cattle which have had the distemper are liable to take it again, or whether cattle-sheds and fields where cattle have had the distemper continue long infected by it; in other words, whether fresh bought in cattle, which have not been infected, are liable to take it from recovered stock, for any considerable length of time afterwards? I may add, that its effects (though bad enough) are not so bad as we apprehended before it actually made its appearance; and the experience I have had in my own stock would lead me highly to commend the report of the English Agricultural Society on the subject, which no farmer who has stock ought to be without.

I am your obedient servant,
A CUMBERLAND FARMER.

Dec. 15.

FARMERS' CLUBS.

IMPERFECT GROWTH OF TURNIPS.

(FROM THE BURY POST.)

The columns of the provincial newspapers, and particularly those in our own county, have been filled, during the last week or two, with Reports of the proceedings of Farmers' Clubs; many of which Societies hold their annual meetings at this season of the year.

The agricultural public have heard and read so much lately of these Associations and the benefit they confer, that any further remarks on the advantages to be derived from them might be deemed superfluous. Contenting myself, therefore, with expressing my regret, that the neighbourhood round Bury (a district in my opinion, from the intelligence of the occupiers of the land, peculiarly suited to such an institution,) is still without experience of the interest attaching to, and the information afforded by a Farmers' Club; I proceed to a few remarks on a subject which has engrossed the attention of many of these Societies at their last meetings; viz.—the Turnip crop, either in its cultivation, selection of seed, and exhibition of specimens, or storing of the roots. Many farmers, and probably not a few round this town who eschew the advantages of a Club, may say—What have we to learn in the growth of turnips?—our soil is favourable—this and the sister country have long been celebrated for the cultivation of them—and it is waste of time to meet and talk over the details of a subject, which we already perfectly understand and succeed in! I readily admit that Suffolk and Norfolk have long been notorious for the quantity of land under cultivation with this root, and that the tillage is generally good and the crop clean; to which the strict covenants in our leases have greatly contributed—but I am far from thinking that we have reached the perfection of root growing, even as it is now practised in some other districts; much less, that we have attained the *ne plus ultra* of this branch of agriculture. Nay, I am not sure that the same covenants—which, by compelling a certain amount of cultivation, have up to this point so materially benefited the system of turnip husbandry in this part of the kingdom—will not, unless removed, prove a stumbling-block in the way of further improvement, by insisting on a certain number of ploughings, for which, perhaps, may be advantageously substituted, on many soils, a more effectual and cheaper cultivation by other implements. The attention now paid to agricultural mechanics by scientific men leads us to expect that if not already accomplished (Biddell's Scarifier on heavy land?) it speedily will be.

But I shall be told—"Our cultivation of roots has been so long notoriously good that we require proof that there is room for improvement!"—we shall be surprised to hear that the most boasted part of Suffolk and Norfolk husbandry may be brought nearer perfection; and if you can convince us, that by meeting and discussing the systems of other counties as well as of this district, or of persons celebrated for their success in this department of husbandry, we can improve our own; we shall not only be surprised, but you will also furnish a strong argument in favour of Farmers' Clubs,—for if we can derive benefit from discussing subjects, in which our practice is already notoriously good, we can certainly receive information on those in which we can but allow we are defective?"

The criteria of a good turnip crop are, quantity and quality—as regards the first, the highest estimate of crops in this district is considerably below what we hear of as obtained by cultivators elsewhere, who pay particular attention to root-growing—and to quality, I am sure we do not pay sufficient attention.

The discussions at the various Clubs appear to have turned chiefly on the cultivation for this crop, and all of them, so far as I can learn, have arrived at the decision that the land should be prepared as much as possible in the autumn.

In the *Mark Lane Express* of the 30th of December, 1839, is a letter from Mr. James Scougall, of Balgonie, in Scotland, in which he gives the details of an experiment made between autumn and spring cultivation in the same field. The turnip seed was sown at the same time, and in the same way on each part, and the turnips (purple-top Swedes) were carefully weighed, clean topped and tailed. The produce from that part of the field which was cultivated in the usual way in the spring, and which Mr. Scougall states "is more than an average one, and is believed to be not inferior to any in the district," was 25 tons 14 cwt.; and that from the part cultivated in the previous autumn, 34 tons 3 cwt. per imperial acre—being an increase of 8 tons 8 cwt. per acre!

In the same newspaper, of the dates 3d and 17th February, 1840, Mr. Matson of Wingham, in Kent, one of the most celebrated turnip-growers in the kingdom, gives his method of cultivation. I should state that during the last Smithfield Club Meeting several gentlemen met each evening at the rooms of the English Agricultural Society, in Cavendish Square, which were thrown open for that purpose. At one of them Mr. Matson was present, when he stated that he could grow from 40 to 45 tons per acre of Swedish turnips, clean topped and tailed, of the quality of those he had exhibited at the meeting. This statement excited some astonishment, particularly amongst the Suffolk and Norfolk gentlemen who were present; and in addition to the account then given by Mr. Matson of his mode of cultivation, he was called upon to give further details of his system; which request Mr. Matson complied with in the papers named above. Space will not serve to insert those letters; but it is sufficient to state, that Mr. Matson's is almost entirely a system of autumn cultivation, to which he chiefly attributes the great weight which he obtains per acre—and wherever evidence has been offered at Farmers' Clubs in these counties, of similar cultivation, the result appears to have been greatly in favour of the crop.

Next to improved cultivation, the selection of seed of the most approved varieties appears to be very essential; and here, I think, we are greatly deficient, the seed in this county being chiefly grown by cottagers in their gardens, to whom the selection of the roots are left; or rather no selection is made, but a load or two of turnips given to them for that purpose; for even where it is desired to propagate a favourite stock, the individual roots of it are not selected, which they ought to be, and none taken but what are perfect in shape, as well as in size and quality.

Mr. Matson says, "a vast deal depends on the preparation of the land, and a great deal on the variety, for without symmetry there will be a great deal of deficiency of weight; for instance, a perfect globular turnip of thirty inches in circumference will weigh from 12 to 14 lbs.; a flat turnip, of equal circumference, ten or twelve pounds only, making a difference of several tons weight per acre." In the same letter Mr. Matson makes allusion to the quantity

per acre which, as I have said, excited so much astonishment at the Smithfield Club Meeting. He says "an earlier preparation of the land is required in order to prepare it for so heavy a crop. When I say a heavy crop, I mean forty tons on a statute acre topped and tailed close to the bulb. There are many who doubt the accuracy of that statement; and in order to put that question at rest, I will wager fifty pounds that I do produce forty tons per acre of the very next growing crop, and on land which has been ploughed for the last hundred years, and the turnips shall be of the very best quality, of the purple-top Swedish variety, and which have been transplanted by myself for the last thirty years." Will any farmer in Suffolk or Norfolk make such a challenge, or dare to accept Mr. Matson's?

Whilst upon the subject of quality in a turnip, I cannot refrain from quoting the same gentleman's racy description of a good turnip, (*Mark Lane Express*, 29th June):—"By quality I do not mean that thick-necked monster turnip sometimes shown at agricultural meetings, and which excites wonder and admiration until it is cut and tasted; when it turns out to be woolly, stringy, juiceless, with ill-flavoured flesh, with gigantic leafage, and altogether fit only for the descendants of the 'Ram of Derbyshire,' celebrated in ancient song. No, no; by quality I mean the fullness of saccharine juice, which delights the palate of cattle, and clothes their bones with flesh at a rate akin to railway speed, that gives the clear crisp slice which flies like glass before the knife, and between the teeth of distinguished noblemen, gentlemen, and yeomen agriculturists, and of worthy Londoners too, whom I have seen crowding around my standing at the Smithfield Cattle Show, munching slice after slice, as if they were astonished how very few removes it appeared to be from the golden pippin or pine apple. I mean that turnip of six, eight, or ten pounds, round as a cricket ball, and which melts in the mouth of those unerring judges, the pigs, who will absolutely fatten on these Swedes," &c.

I fear it will be thought that I am puffing Mr. Matson's turnips, but I must add another proof of the importance of growing the very best variety that can be obtained, which had I been employed by Mr. Matson to write his up, I fear would not obtain his approbation. Attracted by the glowing description I have just quoted, and by the great weight per acre that Mr. Matson speaks of, I procured this year some of his Swedish seed, both purple and green topped; and although I have not yet asked the opinion of "those unerring judges the pigs," I am perfectly satisfied that both are of very superior quality:—but I at the same time ordered some seed of Mr. Skirving of Liverpool, who produced the largest Swedes I ever saw at the last Smithfield show, and who I see has this year exhibited some of eighteen pounds weight at the Liverpool show. I drilled these in alternate rows across a field—each kind therefore has had precisely an equal chance—and although, as I have not yet taken up the crop, I cannot speak to weight, I am yet convinced that, with equal quality, Skirving's purple-top will beat Matson's purple-top twenty, and his green-top thirty per cent! Is not this ample proof of the advantage of growing the best kinds?

The exhibition of specimens at Farmers' Clubs tends to spread the knowledge of this—for many persons, who in walking over their fields are perfectly satisfied with the quality of their turnips, are surprised, when bringing them to these exhibitions, to find their neighbours so much better. From twenty to twenty-five tons per acre is in this district considered a capital crop of turnips—but the differ-

ence between twenty-five tons and forty tons, is, making every allowance for quality of land, enormous.

I conclude with an extract from another letter in the *Mark Lane Express* of 16th December, 1839: "Mr. Berratt, of Ogden, near Altringham, in 1835, produced upwards of 34 tons of mangel to the acre," and—"the successful candidate for the premium of 5l. offered by the Manchester Agricultural Society in 1838 had a crop of six acres, the produce of which weighed 39 tons to the acre." Can any of the successful candidates at exhibitions in Suffolk produce 39 tons to the acre?

Enough then has been stated to prove that both in quantity and quality our root-crops are capable of improvement, inasmuch as they are not equal to the best growths in other districts—and I have no doubt that the late exhibitions and discussions at Farmers' Clubs will tend speedily to produce that improvement by drawing attention to early cultivation and improved quality. RUSTICUS.

ON THE FAILURE OF NITRATE OF SODA AS MANURE.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Being a constant reader of your excellent publication the "Farmer's Magazine," and referring to a letter from David Barclay, Esq., in number 5 for November of this year, I cannot but express my surprise and disappointment, that with so many very clever and well-informed agriculturists in the Rape of Arundel, no one has stated to you the general failure and great loss sustained by the use of nitrate of soda on wheat last spring, in a district extending from the river Arun west, to the Adur east, and from the sea-coast south to the Weald of Sussex north, comprising every sort of soil, management, and situation.

I am a very bad hand with my pen, and shall therefore content myself with stating that the few instances of success form the exception to the general rule of failure.

Hoping if you insert this letter in your next number, it may excite some more efficient person to address you on the probable causes of the failure I have referred to, I am, Sir, your obedient servant,

IGNORAMUS.

Arundel, Sussex, December 19th, 1840.

HAND THRASHING MACHINE.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Seeing in your magazine of 1st August last, an enquiry signed S. T., which is the best machine for thrashing corn,—I can recommend the one we have in use, which is worked by four men, a man to feed, and woman to clear away the straw, and boy to get the sheaves: it thrashes about 7 to 8 qrs. wheat, 7 to 9 qrs. Barley, and 9 to 10 of Oats; of course all depending on length of straw. We are now thrashing barley, which costs (with cleaning) 2s. 2d. per qr., leaving scarcely any grain in the straw. We had it from Mr. Tillman, Lewes, Sussex; the cost there is 12l. There are some worked by two men besides the feeder, &c.; they are to be had of Mr. Ule—I believe is his name—at Newport, Isle of Wight: his cost 13 guineas, which I think dearer than the other, as you must have the same number of people to assist and not thrash so much.

I remain yours, &c.,

A NATIVE OF EAST KENT.

ON DUNGHILLS.

TO THE EDITOR OF THE DORSET COUNTY
CHRONICLE AND SOMERSETSHIRE GAZETTE.

SIR,—My last communication was based on the all-important question—the necessity that every effort should be made for increasing the production of our native soil; which should be kept in view by landowners, and by all well-wishers to agricultural prosperity.

I am now desirous to draw the attention of renting farmers to the importance of economy and management of farm-yard manure, commonly called dung. It is an old saying and true, that “muck is the mother of the mow.” My object then is, to point out the enormous waste of manure, in the shape of muck, resulting from badly constructed farm yards, and by mismanagement. And first, by way of hint to the landowner, there are but few *old* farm yards in the western part of this county, but are situated and apparently formed for the purpose of washing away into brooks and streams this muck. The sites which have been selected for the sheds, commonly called “linhays,” are placed on an eminence, with the yard or “barton” on an inclined plane—frequently on a considerable declivity. The consequence is, the valuable property of the muck is either wasted by evaporation, or washed away by heavy rains and by the accumulation of water from the roofs of the sheds, amounting, when the fall of water is heavy, to a flood. This waste of manure, in too many instances, goes on throughout the winter. What then must be the amount of waste and loss? The blood-coloured streams of water, tinged by the mucilaginous and extractive matter—the soluble essence—flowing away throughout a long winter, is the best answer.

It is no novelty to see an accumulation of stable dung at the door, or placed near and under the eaves, smoking with excessive fermentation, and driving off in a gaseous form, carbonic acid and ammoniacal matter—the constituent property of good farm-yard manure; the residue being merely woody fibre, and scarcely worth taking away. All farm-yard dung, and particularly that from high fed cattle, deteriorates from the same cause. It is too much the practice, to let the dung accumulate through the winter till the cattle is being about to be turned to grass, and then to collect the whole into large “dunghills;” by this practice, on badly constructed farm-yards, one-half of the quantity, and three-fourths of the quality, is lost to the farm and to the public.

The landowner would do well for himself and his tenant, by diverting the water from his farm-yards, by shutes being fixed to the eaves of the buildings; the tenant would soon discover his interest by preparing layers of soil, from one foot to eighteen inches thick, for a base, cast on his dung as soon as made, and seal it down with another layer of soil, &c. Clay or marl should be used for layers, &c., of composts for light and gravelly land, and *vice versa*.

Sir Humphrey Davy has informed us, that when dung heats beyond 100 degrees of Fahrenheit deterioration commences. He subjoins a test:—“When a piece of paper, moistened in muriatic acid, held over the steams arising from a dunghill gives dense fumes, it is a certain test that the decomposition is going too far, for this indicates that volatile alkali is disengaged.”

Having given my opinion on the economy of

farm-yard dung, I shall conclude, on the present occasion, by detailing the practice I adopt in further preparing these compost heaps, preparatory to being laid on the land intended for its reception, &c. Early in the spring, and when the temperature rises, these composts should be well turned and mixed: this cannot be too effectually performed. When heat is generated in the compost, which is generally the result in ten days or a fortnight, according to the temperature of the atmosphere, they should be re-turned and intimately mixed again; and this process should not, on any account, be neglected; the non-deterioration of the manure will not be safe till it is well amalgamated with the soil intended for cropping.

I am, Sir, very truly yours,

A FARMER.

North-West Somerset, Nov. 21, 1840.

ON OIL DREGS AS MANURE.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—As your magazine is made the vehicle of communicating intelligence to agriculturists which may be beneficial to them, you will perhaps indulge me by inserting the following remarks.

In the present day a great deal is said about various kinds of manure, but that certainly must be the best which makes the land most productive. I have tried various kinds, but I find none to answer so well as oil dregs; I procured of Messrs. Wake and Officer, of Hull, a quantity last spring, to drill in with turnips; I put on about 1½ cwt. per acre, with about 6 qrs. of ashes, and I find them to be much better than those drilled in with bones; in fact, they are the best piece of turnips I ever had, and there is none better in the neighbourhood. I have drilled about 2 cwt. per acre in with my wheat; how it will answer remains yet to be proved. As several farmers have tried oil dregs as a manure, perhaps this will draw from the pen of some one more able than myself some remarks on the subject.

I am, Sir, yours,

A CONSTANT READER.

N.B. The cost of the dregs was three guineas per ton.

ON THE ERADICATION OF COLTSFOOT.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—In one of your last numbers, I find *weeding* pronounced a remedy for coltsfoot; but perhaps I may be allowed to state that I have repeatedly given it a fair trial, and as often have failed in clearing the land of them.

Having failed to eradicate them by weeding, I was induced to try another experiment, viz., *draining my land well*, which I found perfectly to answer my purpose. And now having adopted this plan for several years with complete success in every case, I venture to pronounce it an infallible remedy. So sure am I of its efficacy, that I would not fear in the least sowing any portion of my land that is well drained with coltsfoot.

I am, Sir, your obedient servant,

EDWARD BIRCH.

Cottenhall, near Denbigh, December 19th, 1840.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

MR. EDITOR,—Agriculturists must feel highly indebted to Mr. Brabyn for the valuable information he has imparted to them in his letter, addressed to the Farmer's Magazine, November 14th. Mr. Henry Jemmett, of Burford, in the Farmer's Magazine for April, stated that Gypsum could be easily made; now that we are informed how beneficially it might be applied to our stables, which are at busy periods frequently unavoidably neglected, I hope Mr. Brabyn, who appears so competent to the task, will add to our obligations by kindly communicating, through the Farmer's Magazine, some easy process that will enable us to attain so desirable an object.

A DEVONSHIRE FARMER.

South Hams, Dec. 2.

ON LIME AS MANURE FOR BEANS.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—You will much oblige me by enquiring, through the medium of your pages, whether lime be good manure for beans; and if so, at what period it should be applied?

I am, Sir, your's respectfully,
Nov. 24th, 1840. HENDRE HEN.

ON THE USE OF SAGO.

SIR,—A great favour would be afforded me, if any one among your correspondents could give some instructions relative to the use of sago meal in fattening pigs; what quantity is required to be given at a meal, and in what manner. The subject has been alluded to already in your very useful publication, but I should like to hear something more explicit.

I am, Sir,
Your obedient humble servant,
A CONSTANT READER.

ON THE QUARTER EVIL.

SIR,—Having suffered great losses amongst my year old and two year old cattle for some years, by the disease called the quarter felon or quarter ille, I should feel obliged to any of your correspondents if they would insert in any number of the agricultural magazine published by you, a prescription and treatment to prevent or cure that most insidious and fatal disorder.

Dec. 9th.

A SUBSCRIBER.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—It is now generally understood amongst agriculturists, that thorough-drained land does not produce crops of Beans equal to what it did previous to its having undergone that process. If any of your numerous correspondents would, through the medium of your valuable and extensively circulated Journal, throw a little light on the matter, plainly stating cause and effect, and remedy, if any has yet been found, it will greatly oblige, Sir, your obedient servant,

ENQUIRER.

ON COAL TAR.—A correspondent says,—I saw an account of an experiment on gas or coal tar, and which failed in consequence of the land

getting an over-dose; this could be very easily remedied. May I trouble you to inform me how many gallons of the tar would be sufficient for an English acre, and how it should be used? I have been thinking that the best plan would be to mix the tar with a quantity of fine bog-mould or earth. Please to say, would it be fit for potatoes or turnips, as those would be my great object: if we can have potatoes and turnips, all the others will follow.

ON MOWING WHEAT.

SIR,—The system of mowing wheat being but lately introduced into this county (Beds.), will you, or some of your correspondents, accustomed to it, inform me whether the expense of thrashing it is not much greater than when reaped with the sickle, and what is generally considered a fair price?

November 13, 1840. AGRICOLA BEDFORDIENSIS.

FOREIGN AND ENGLISH LIN-SEED CAKE.

SIR,—I am feeding a quantity of Linseed Cake, both Foreign and English: I want to test the qualities of each. Can any of your numerous readers inform me the best way to arrive at that point, as it is a matter of considerable importance to the agricultural world.

I remain, Mr. Editor, your obedient Servant,
Saffron Walden, Nov. 14. A CONSTANT READER.

M'EWAN'S DRAIN PLOUGH.—We were much gratified the other day by seeing Mr. M'Ewan's drain plough at work, exhibited to a select party on his farm at Blackdab. The plough was drawn by twelve horses, and completed its work in admirable style, forming a beautifully-cut drain, from 18 to 22 inches deep, 14 inches wide at the top, and 6 inches at the bottom, fully prepared for the tiles or stones, excepting spots where the inequalities of the ground required a little paring, with a spade or scoop, to regulate the level; and as a proof of the efficacy of it, we may mention that Messrs. Drummond, of the Agricultural Museum, have since received orders for several, from gentlemen who witnessed its performance. To the agriculturist a very great saving of expense must result from the use of this plough; for we are told, that after allowing the usual rate for men and horses, &c., 2d. per rood, of 36 yards, covers all expenses of cutting. Mr. M'Ewan, the spirited inventor has, with his own men and horses, thoroughly drained 50 statute acres in one season, with a drain in every furrow.

Agriculturists may not be generally aware of the existence of an apparatus for preparing food for cattle by steam. Indeed the fact that few have such an article must prove an ignorance of its existence, or, what is worse, a blindness to their own interests, in not adopting the system, if they really know that it does exist. We had the pleasure of seeing one in operation a few weeks ago at the farm at Fardalehill, near Kilmarnock, possessed by Mr. Warner Barr, and for cheapness (little more than what would be required to set up a common boiler) and simplicity of construction, with the incalculable advantages derivable from its use, in the production of a healthy and nutritious description of food, we should say that it cannot be equalled by any other substitute. A bushel of oats was thoroughly boiled in twenty-five minutes, potatoes and turnips in fifteen and eighteen minutes respectively, while the same fuel would have served to boil twenty bushels of any sort of food. But a saving of time and fuel are not the only advantages; for, during the preparation of the different kinds of food, a substance closely resembling tar, and of an extremely poisonous nature, was thrown out, which in the common boiling process must be amalgamated with the food, and therefore cannot but be prejudicial to the health of cattle.—*Scottish Paper.*

SUSSEX CATTLE.

We have been favoured with the following communication from Mr. Selmes of Beckley:—

It will be in the recollection of all breeders of cattle, that at the Oxford meeting in July, 1830, I challenged any breeder to show 100 head of cattle, (bred by himself, and in his own possession) which challenge was accepted by Earl Spencer, with 100 of his "short-horns." I have now just sold six of the oxen which were exhibited in September 1830, in the yoke (being part of the 100) having continued to work till the first week in the following November, since which time they have lived on grass, hay, and 731lbs. of oil-cakes, with 42 bushels of turnips each.

The prices of the six oxen are as under:—

No. 1	£55	0	0
2	54	0	0
3	54	0	0
4	53	0	0
5	52	10	0
6	49	0	0

From this statement the breeders and feeders of the different descriptions of cattle will be enabled to form some idea of the merits of Sussex cattle.

CALENDAR OF HORTICULTURE
FOR JANUARY.

The remarks with which our December notice opened (see page 470) were not inappropriate, for frost of considerable severity has occurred at several periods of the month; snow also came on the 16th after three days of very reduced temperature, with a strong current from the north-east. The ground became perfectly hard, and as the wind lulled to a calm, no drifts had formed to the present time. But more of this hereafter. It would be interesting, were there a possibility, to compare the variations of temperature which are experienced in situations by no means remote from each other.

On the morning of December 15, our night thermometer indicated six degrees of frost (26° Fahrenheit.) In a garden not more than a mile from ours, perhaps rather higher, but certainly on a more clayey soil, the mercury was depressed 9 degrees. We have already read of 14°. A regular report is given from accurate registers taken in the Horticultural Society's garden at Chiswick, which seems to prove that the temperature is lower than we observe it to be; and during the intense frost of 1838, the differences in several localities were surprising.

Shall we ever be enabled to unravel these mysteries? Our instruments tell us of "by-gone conclusions," but reveal nothing of causes!

But though little can be said hereon, we may safely revert to effects; and therefore, as far as appearances may be relied on, never we believe did nature assume a form more promising either in garden or field. The weather has been seasonably fine and propitious, and the gardener has had opportunity to effect every object either of science, labour, or protection.

THE VEGETABLE GARDEN.

We might safely refer to page 470, col. li, for directions, which would equally apply to January prospectively; but all our present readers may not have the number at command; and therefore,—observing that the condition of the ground and

atmosphere must decide at the time,—we say that, at different periods of the month, ground may be *trenched*, double digged, or simply turned and ridged; and it will be advisable to prepare plots in fields or orchards for potatoes in a way which we know will provide a permanent staple.

Turf the piece—then open a trench, and ascertain to what depth the best surface-soil extends. Do not raise any that is clayey, gravelly or intractable, but turn that defective subsoil a spit deep; then invert the grass turf upon it and cover, or pave the bottom of the trench with it. Scatter common salt, or rather nitrate of soda, over the turves, and return the good earth, or a corresponding quantity of that from an adjoining trench. Thus proceed till all the piece is trenched.

The theory of *humus*, and humic acid, acquires stability; and on this, we refer the reader to an erudite article by Professor Sprengel, published in the last number of the Journal of the Royal Agricultural Society.

Humus is in fact found abundantly in all our old dung-mixens, and in old black garden earth. It is a result of the gradual decomposition of vegetable and animal remains. As it contains a substance little soluble in water, but which readily and abundantly unites with soda and potassa, writers are in the habit of calling it an acid, "*humic acid*!" but the expression is at the best lax, and conveys erroneous ideas. We do not mean to deny the fact of a chemical union taking place between the substance in question and alkalis; because we have obtained practical assurance, that a piece of black spit-dung, after it has yielded all the colouring matter which water, cold or hot, can extract from it, will, on the application of a very small portion of a solution of pearlashes, or common soda, produce a liquid of a deep brown colour; proving that the alkali has extracted something from the dung which was previously insoluble. But this alone, in the absence of effervescence, or other known chemical phenomena, will not convince us that this colouring substance is necessarily an acid.

But leaving this question of doubt to be solved by future experiments, we come to the point which the facts already established indicate to be essential.

The food of plants should, in a great degree, be laborated within the soil; thus, stable or farm-yard dung ought to be deposited deep in the soil, not *fresh* indeed, but in a state of semi-decomposition: it will then be brought without loss of its essential gases, to a condition which the plant delights in, and on which its vital energy is displayed most advantageously.

By preparing a plot of fresh meadow for potatoes in the manner above described, we provide an ample supply of decomposable matter for that crop; and by super-adding a *neutral nitrate*, to the extent of one pound to every square rod or pole of reversed grass surface, we give the two substances so in contact, the opportunity slowly and gradually to decompose each other; in which decomposition the nitrogen of the nitrous acid will produce *ammonia*, by union with the hydrogen of water (which must be present, and is always an active electrifying agent), and the *humus* of the soil is dissolved by the action of the soda, a base of the decomposed nitrate. This we deem an approach to the theory of the efficacy of saltpetre and nitrate of soda; and if chalk or mild lime be present in the soil, just in proportion, we suggest,

will be the activity with which these disturbances and new combinations are effected. The following passage is extracted from Dr. Sprengel's paper on Animal Manures noticed above.

"If we manure a field with fresh horse-dung, and sow it immediately after with corn, it frequently happens that the plants turn black and appear charred: this always arises from the portion of the ammonia produced from the dung which has not been neutralized by humic acid. This blackening of plants is erroneously regarded as the effect of smut; it is most likely to happen when a soil very deficient in humus has been manured with horse-dung. In order, therefore, that none of the ammonia may be lost in the form of gas, it will always be found the most advisable to apply fresh horse-dung where the soil is richest in humus; for so the manure has an useful effect on the component parts of the soil, rendering the humic acid more soluble."

We cite this passage with the two-fold object of showing what the modern theory is—and to give an opportunity to say that ammonia (the *volatile alkali*, or common smelling salts) acts equally on black-spit-dung, as do soda and potassæ—and it exerts a more destructive power on vegetable bodies, if it come directly in contact with their leaves or roots. We once had ocular proof of this, in attempting to remove the turtle insect, or brown scale, from a small cape jasmin (*gardenia*). After vain attempts to clean the leaves and foot-stalks, the plant was covered with a close vessel, to which a small volume of ammoniacal gas was introduced; after a few seconds the vessel was lifted, and the foliage was found to have acquired an intense bluish-green tint; it was very beautiful at first, but the leaves speedily afforded proofs of the injury their organisation had received, all shrunk and fell, and the plant never recovered.

This deep tint forcibly calls to recollection the rich dark colour imparted to grass, by nitrate of soda prudently applied, and it tends to corroborate the idea before suggested, that the nitrate is decomposed, and its acid also, the nitrogen of which unites with hydrogen, and produces ammonia. Soot develops much ammonia, if blended with lime, and its due application is productive of deep verdure; it also acts destructively if misapplied; a neighbour killed all his strawberries in 1839, by a free top-dressing of coal-soot.

These facts lead to analogical reasoning, if they go no farther.

Land prepared as directed, by trenching and turfing, will produce a great crop of potatoes; but in the following season it should be manured with dung, for the Brassica kind of plants.

Small Rhubarb plants can now be forced under pots covered with warm dung, as also a second plot of sea-kale for succession.

Sow, if the ground be free and pretty dry, rows of peas, beans, carrots, onions, also a little hardy lettuce, and radish seed. The *grand admirable* is the best of all lettuces; it is extremely rich and tender, and grows to an immenso size; but we only name this prospectively, because the season is still too early for so delicate a variety.

Earth up all growing crops, and stick peas, first, with short spruce fir-bows, if obtainable.

At the end of January, plant out a good number of York-Vanack, or other cabbage plants from the nursery beds.

Keep Mushroom beds deeply covered with straw, they must be effectually protected from frost.

FRUIT GARDEN.

If the weather prove long fine, and mild, gooseberry bushes may enlarge their buds, in that case prune them; as also raspberry plants, and currant trees, but otherwise desist till February; our general remarks on pruning will be deferred till then, as we disclaim the use of the knife till there be signs of activity in the buds of any tree.

FORCING DEPARTMENT.

Keep the *pine stove* moist and warm; never, as we observed last month, suffering a plant to flag, because if it once become torpid, premature fruit is the inevitable result.

The *Vinery* for early fruit, should now enjoy 62° by fire, and be freely steamed, and the rods syringed. Every day, frosty or not, adds energy to the sun; 1840 was perhaps an exception, in consequence of the almost incessant rain and gloom. The ground also was so drenched with water, that it required the splendid sun, lively wind, and total absence of rain during March, to rectify the mischief already produced.

GREENHOUSE.

The keen wind, and really severe frost, (now at 21°) demand some care, and as we directed in December, "a degree or two by fire, above 32 of Fahrenheit" but no more, must be maintained; a dry house, and very sparing supply of water, are chief points of security.

THE FLOWER GARDEN

admits of few operations excepting those of protection. All the best evergreens should have heaps of leaves around them, and among the branches.

Cakes of Moss laid double, about *Rhododendrons*, *Azalias*, *Kalmias*, *Arbutuses*, *Aucubas*, and other hardy plants, would prevent much disfigurement.

Beds of Tulips, and indeed of all bulbs and tubers should be covered with litter, or by laying hurdles flat and supported over them to the height of a few inches, to be covered with mats as wanted. Light frames might be prepared for the express purpose, and being kept ready, would obviate much litter.

The protection of evergreens in the event of frost or even recurring light snow, is of considerable moment. Thousands of trees were lost in 1838 by the *intensity* of frost; but in winters of little severity, many fine laurels and laurustines are scalded and disfigured by a powerful sun acting upon masses of snow on the leaves. It was Gilbert White, of Selbourne, who first strenuously urged the necessity of beating off the snow from the branches, with long poles or whisks, ere the sun had acted on it.

Let us re-urge this expedient, for we have proved it efficacy.

Dec. 18.

DRILLS.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—May I beg leave to ask, through the medium of your widely circulated Magazine, for a little information respecting a drill so highly spoken of in your December number, by the president of the Lancaster Agricultural Society—where it may be procured—at what cost—and what advantages it possesses over common drills? An early answer would much oblige,

A CONSTANT READER AND
CAMBRIDGESHIRE FARMER.

Dec. 21, 1840.

AGRICULTURAL REPORT.

GENERAL AGRICULTURAL REPORT FOR DECEMBER.

As to farm labours, this is perhaps one of the most unimportant periods of the year, yet the events which have taken place this month in the agricultural world are in every way worthy of particular observation. In the first place, one of the most important features has been the extraordinary fineness of the weather throughout England, which has had a most beneficial influence upon the whole vegetable creation; indeed, we scarcely ever recollect a corresponding season in which so few obstructions have been experienced by our farmers, in the prosecution of their necessary occupations, as that forming the subject of this report. Our numerous correspondents in different quarters have transmitted to us the most gratifying intelligence, relative to the young wheat-plants—they one and all stating, that they are looking remarkably strong and healthy, even in exposed situations; while, in the hollows, they have been well protected from the cold north-easterly winds by the late fine falls of snow, none of which have been of sufficient depth to cause any serious inconvenience to our graziers, except, indeed, in some instances in the fens of Lincolnshire. But we are happy to observe the casualties have been by far less numerous than we have had occasion to notice on some previous occasions.

It has been a general subject of remark of late, that the past has proved one of the finest seed times recollected for a series of years past; hence, one great step has been obtained towards realizing a good crop in 1841. The soil, too, has been found to work remarkably well, even in those damp and low parts which are usually cultivated with considerable trouble and a large outlay of capital. We have likewise to intimate, that the flail and thrashing-machines have been actively employed during the whole of the month, and that the produce has been, on the whole, much more extensive than was at one time anticipated.

From Scotland, we learn that the weather has proved excessively severe, but by no means unseasonable; while the epidemic, so much complained of in England, has been committing the greatest devastation amongst both beasts and sheep. This circumstance, as a necessary consequence, has had the effect of causing unusually high prices to be demanded for both fat and store stock, and created no little alarm amongst the owners. The various markets have been tolerably well, but not to say heavily, supplied with wheat, the quality of which has been very superior; good heavy samples have sold readily at an enhancement of fully 1s. per qr., and the value of the secondary kinds, as also of other qualities of grain, has been well maintained.

Throughout Ireland the young wheats are represented as looking very promising, but there has been a great comparative decrease in the produce on being submitted to the process of thrashing. Wheat has produced a fair inquiry, but otherwise the demand has been very inanimate.

In the whole of our provincial districts, as also at Mark Lane, there has been a considerable revival in the wheat trade, owing, in some measure, to the slight falling off in the receipts, while an advance of from 1s. to 3s. per qr. has been readily obtained for all descriptions. The best malting barley has improved 1s. per qr., grinding and distilling sorts remaining stationary. In malt no variation worthy of notice has taken place. Oats have come slowly

to hand from all parts, and their quotations have been well maintained. Beans, peas, and flour as last noted, with a limited amount of business passing.

The holding of the Smithfield Club Cattle Show has, as usual, attracted considerable attention from agriculturists; but it is to be observed that, owing to the so much complained of epidemic, the numbers of fat stock brought forward were by no means so numerous as we have had the pleasure of noticing on many previous occasions. However, the beasts and sheep well merited the prizes awarded to them, and exhibited the greatest skill on the part of their owners. Whilst on this subject, we would respectfully beg to call the attention of the noble supporters of the above mentioned society, to the necessity there is for the formation of a class for beasts which may have been fattened on succulent food only. This is, we are aware, the view now held by some of the leading graziers, hence its accomplishment is a matter of no mean importance.

The following is our monthly statement of the supplies and prices of fat stock exhibited and sold in Smithfield cattle market.—The supplies of beasts have amounted to 15,021; of sheep, 94,000; of calves, 994; and of pigs, 2,540; while the prices have ranged as follows:—Beef, from 3s. 4d. to 5s. 8d.; mutton, 4s. to 5s. 4d.; veal, 5s. to 6s.; and pork, 4s. to 5s. 2d. per 8lbs. to sink the offals.

On each market day the general quality of the stock has been unusually inferior, in consequence of which the finest descriptions have commanded an increased sale at exceedingly high prices; indeed, those of the best Scots, Devons, and runts have been higher than for a series of years past, and the whole of them have been readily taken off. For other kinds of stock there has been a steady enquiry at tolerably remunerative currencies. A large portion of the stock has come very lame to market, but not so much out of condition in that respect as last month.

A STATEMENT AND COMPARISON OF THE SUPPLIES AND PRICES OF FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, December 30, 1839, and Monday, December 28, 1840.

At per 8lbs. to sink the offals.

	Dec. 30, 1839.		Dec. 28, 1840.	
	s. d.	s. d.	s. d.	s. d.
Coarse & inferior Beasts	3	0 to 3	6	.. 3 2 to 3 4
Second quality do.	3	8	3	10 .. 3 6 3 10
Prime large Oxen.....	4	0	4	6 .. 4 0 4 8
Prime Scots, &c.....	4	8	5	0 .. 4 10 5 0
Coarse & inferior Sheep	3	6	4	0 .. 3 8 4 0
Second quality do.	4	2	4	4 .. 4 2 4 4
Prime coarse woolled do.	4	6	4	10 .. 4 6 4 10
Prime Southdown do..	4	10	5	0 .. 4 10 5 0
Large coarse Calves ..	5	0	5	4 .. 5 4 5 6
Prime small ditto.	5	6	6	0 .. 5 8 6 0
Large Hogs.....	4	2	4	8 .. 4 2 4 6
Neat small Porkers ..	4	10	5	0 .. 4 8 5 0

SUPPLIES.

	Dec. 30, 1839.	Dec. 28, 1840.
Beasts.....	1,900	2,513
Sheep	18,000	21,510
Calves.....	212	59
Pigs.....	364	497

The arrivals of slaughtered meat from various quarters up to Newgate and Leadenhall markets, have been very limited since our last, and of inferior quality, whilst the enquiry has proved steady at full prices.

REVIEW OF THE CORN TRADE

DURING THE MONTH OF DECEMBER.

The commencement of 1840 was not very propitious to the agricultural interest, and consequently not very favourable to the community at large. The harvest of 1839, which succeeded one of a very inferior description, was deficient in quantity, and generally the quality of the grain was lighter than usual, and in some degree damaged. From the large quantity of foreign grain, which had been entered for home consumption during the year 1839, and the large deliveries of inferior and light grain with which all our great markets of consumption were supplied in the beginning of the year, which has been just now brought to its conclusion, a decline took place in the value principally of wheat and oats, the prices then obtained not being in many instances remunerating to the growers of British grain. The corn-trade remained in this depressed state so long as farmers generally had any grain to sell; and vast quantities of foreign grain continued to be imported and landed under Her Majesty's lock, it having been perfectly obvious that this state of corn affairs could not continue until the new crop, however brilliant the appearances of it were, could be brought to market. A good deal of foreign grain was entered during the spring months for home use, on the payment of duties fair to the public revenue, and protective of the home producers; and these foreign supplies for a while were fully equal to the demand, and prevented for a time the occurrence of such an improvement in value as was necessary to pay the home grower for the deficiency in his crops. During the months of July and August, the farmer's difficulties were again augmented by an unnatural advance, occurring chiefly in wheat, which permitted immense farther entries of foreign wheat to be made on the payment of only nominal duties; although it must be admitted by all, that these large foreign supplies were absolutely necessary to the wants of the community, still it is equally evident, that the foreign proprietors of that grain should have been charged for the use of our markets with duties on importations, at all events, commensurate with the taxes, direct and indirect, which are imposed on our own farmers. Taking the mean value of wheat, on the average of years, so low as 50s. per quarter, an import duty of 15s. per quarter would not be more than the duties imposed on various descriptions of foreign manufactured goods, when imported for consumption in the United Kingdom. Thirty per cent. of duty on the original value of foreign goods, is considered a fair and necessary protection to our own manufactures of similar descriptions of goods, and the importers, knowing the amount of duty to be paid by them on the importation of these goods, purchase their supplies, in an equal proportion, cheap abroad; and thus the foreign manufacturer, and not the British consumer of this description of goods, pays an adequate tax into our exchequer for the use of our markets of consumption. To apply the same rule to grain, when its importation becomes necessary, would only be an act of common justice; and had it been generally practiced during the last two or three years, the revenue would have shown a very different result to its present state, and the Chancellor

of the Exchequer might again have been compelled to consult the House of Commons respecting the best channel for the disposal of its surplus. Fifteen pounds are considered a just and adequate protection to the home manufacturer, *(and this is in many instances the duty levied)* on the importation of fifty pounds worth of foreign manufactured goods; and fifteen shillings of duty on the importation of fifty shillings worth of foreign wheat, would be only a proportional protection to the British agricultural interest. Our farmers are charged with the same amount of indirect and direct taxes, whether their crops be good or bad—whether the prices obtained for them be remunerating, or destructive to their property embarked in agricultural pursuits, whilst the foreign proprietor of grain seldom pays any but nominal duties on his agricultural produce consumed in our markets. However very absurd this may appear to be, and actually is, still it most unfortunately is the practice of the corn system of the United Kingdom, and what is still much more extraordinary—it has the sanction of the British legislature. During the years 1838 and 1839, the crops of all descriptions of grain were notoriously deficient both in quantity and quality, and as we have already said, large foreign supplies became absolutely necessary to make good the deficiency occasioned by two bad crops. The anti-corn law lecturers have had a fatal stab inflicted on their anti-national doctrines by this circumstance; for the export commerce of the British Empire has not, in the slightest degree, been increased with those foreign nations and states, from whom these large supplies of foreign grain and flour have been drawn. On the contrary, money for commercial purposes has been rendered unusually scarce, and consequently dear at home, by the very large specie remittances which have been made to the foreign landed proprietors of those countries from which the foreign supplies of agricultural produce have been received, and thus a serious depreciation has occurred in the value of almost every description of property within the empire. This money returns not again to this country; for the consumption of British manufactures by the serfs of Poland, where the best wheats are grown, is at no time of any moment, consisting as it does chiefly of old thrown-off clothes of the English peasantry, whilst in the United States of North America, a duty in most instances of fifty per cent. is levied on the importation there of certain descriptions of British-manufactured goods. There the landed proprietors complain of the British corn laws, because they give in our own markets occasionally a preference to agricultural produce of our own growth over that of foreign nations, and thus, as they assert, deprive them of an excellent market for the surplus of their agricultural produce, to the amount of forty millions of dollars annually. No doubt the ruin of our agricultural interest they would consider but of little consequence, if the object of their ambition could only be obtained by this sacrifice of the best interest of the United Kingdom. When, however, the immense value of lands in this empire is taken into consideration, amounting, as it does, to upwards of three thousand millions sterling, and as it is perfectly

notorious that the value of this property depends on efficient protection being at all times extended to the produce of our own lands, it is impossible to fancy that the legislature can commit such an act of national suicide as to repeal the corn laws, under the protection of which every interest in the country prospers. In commercial and manufacturing pursuits of every description, the capital embarked certainly does not amount to two hundred and fifty millions in all; and surely it would be bad policy to sacrifice agriculture to commerce under such circumstances. But, as we have already repeatedly shewn, trade universally suffers by the depression of agriculture, and to repeal the corn laws and render the foreign corn trade entirely free, would, in a few years, be attended by general ruin. The wages of labour would be placed on an equality with the price of bread, and at least one half of the people, who are now receiving good wages, would soon be thrown entirely out of employment. The productive classes of society are however perfectly convinced of this fact, and public meetings, therefore, to petition Parliament for the repeal of the protection now given by the law to the agricultural interest, are not attended by any of them. They generally are satisfied with the wages paid to them under the present system, and they desire no change in their present circumstances which is not founded on practice. They prefer certainty to theory, and consider it better to receive good wages for working and manufacturing for consumers at home, than, by destroying the means of the home consumers to pay for the articles they are in the habit of using, to depend on foreign consumers to make good to them that deficiency in their employment, which the ruin of the agricultural interest would inevitably entail on them. During the last three years the bullion in the Bank of England has been reduced from nearly twelve millions sterling to little more than three millions, and this unfortunate state of our monetary system is entirely the consequence of the large importations of foreign grain, to which we have been subjected during the same period. Had the money paid to foreigners for the necessities of life been expended amongst our own farmers, it would at this moment have been in productive circulation at home—would have been extending our internal commercial pursuits—would have been increasing agricultural improvements—and would have been adding considerably to the present rates of the wages of labour by the increase which it must, from necessity, have occasioned in the means of productive employment. It would have been, in part, the means of rendering millions of acres of land, at present in a perfect state of nature, productive, and consequently useful to the community at large. It would have been encouraging the consumption of all things necessary, and thus extending our commercial pursuits. It would, in short, have been spreading blessings and benefits throughout the British Empire, and would have given perfect and satisfactory evidence of the necessity of continuing our present protective system in commerce, shipping, and above all in agriculture. Two bad harvest seasons have subjected us to many difficulties, which two good crops however will remove entirely. The last crop was an abundant one, both in quantity and in quality, and another one of the same description will again place everything on a proper foundation. The repeal of the corn laws, however, would not only perpetuate the existing scarcity of money, but would annually add to our pecuniary wants, until poverty superseded wealth,

and misery became the lot of the present happy and flourishing population; whilst under their protective influence, the progress of agricultural improvement must eventually render us, not only independent of foreign supplies of the necessities of life, but also increase our foreign commerce by the supply of many of our southern colonies and possessions with the surplus growth of our own fields. Wise laws must produce these effects, and if the crop of 1841 only should be equal to the last one, we shall soon afterwards have no occasion to reduce the value of property and of wages at home, by exchanging the precious metals for foreign grain. During the month which has now closed, our markets generally were so plentifully supplied with foreign wheat in particular, that prices, on the average, have declined considerably more than was generally anticipated two months ago; but the deliveries from our home growers were rather small, and the decline in the value of this article, therefore, was of the less consequence to our farmers and tenants. Before the end of the month, however, a re-action to the extent of two or three shillings per quarter occurred in the value of the best descriptions of British wheats, and the markets generally assumed, at all events, a more healthy appearance. As the wages of labour have not yet been materially reduced by the scarcity of money and the cheapness of grain, a steady consumption may be fairly anticipated during the remainder of the present corn season, and all classes must profit by this fortunate circumstance. The means of the consumers being fully equal to the present value of all the necessities of life, and the last harvest having been most plentiful, and of excellent quality, we consider the future prospects of the agricultural interest as cheering, and in all respects satisfactory, whilst their prosperity must be of much advantage to manufacturers, and to all the industrious classes of society. It will prevent any farther exportation of money to foreign nations in payment for the necessities of life, and the capital thus profusely, we may say, squandered away, will be retained within the Empire—will be employed in giving productive labour to the people, and thus circulating profitably amongst the community. The value of everything depends entirely on the demand for it; when labour is in demand wages are good, and thus the consumption of all the necessities and of some of the luxuries of life are proportionably increased from this circumstance. Throughout all the manufacturing districts the consumption of goods has been increased, and this demand must be still farther improved by the means to pay, which the late valuable crop has conferred on the landed interest. British society is at present in a flourishing condition generally, and the wealth of the nation is annually increased. Yearly now are large tracts of land, almost in all quarters, which previously had been useless, brought forward into cultivation, and made useful to the people. Under the protective influence of the corn laws, these improvements must rapidly increase, (for many millions of acres are still in a state of wildness,) until the United Kingdom be enabled to support far more than the double of her present population. The science of agriculture itself, under the auspices of the Royal Agricultural Society of England, and of many other patriotic associations, is progressing also so rapidly, and the knowledge being acquired in the best means of tillage is so very considerable, that the same fields which produced grain a quarter of a century ago, now yield at least a quarter, or even one-third

more in quantity, and of far better quality than they did a few years since. These are certain benefits, and they may be said to be still only in their infancy, for it is not possible even to fancy the limit to agricultural improvements, under the science, attention and capital, which are now in all quarters applied to them. The proposed new county of Victoria, when it arises out of the wastes in Norfolk and Lincolnshire, will of itself add greatly to the present agricultural wealth of the empire; and there are many other districts of equal importance throughout Great Britain, which now require the art and labour of man to reclaim them from, we may say, the wilderness, but which are also equally capable of being rendered highly valuable to the general interest. The conversion of useless lands into cultivation, even should it be attended by no greater advantage, should be persevered in, because it must give an additional quantity of productive labour to the people, and also because it must in a very material degree limit the very expensive and anti-national system of encouraging the emigration of the most enterprising, and consequently the most valuable portion of the agricultural community. The field for much greater improvements in agriculture than those which have been already effected, is nearly boundless; but without due encouragement it cannot make the rapid progress of which it is so capable, and strong corn laws alone can give that degree of protection, which is so necessary to its successful prosecution. To render the people as independent as possible of foreign supplies of grain, is the true road to their general prosperity. There is now, at all events, a prospect that after the present corn season, the importations from abroad will be considerably less than they have been for several years past. The last crop was luxuriant in every way, and a better winter seed time than the last has seldom indeed been experienced. We are persuaded that the check given towards the close of December to the winter wheats, must be very beneficial to their future growth. It has checked their luxuriant appearance no doubt, but it has proportionately given strength to them at the roots, and thus leaves, at all events, the prospect of another favourable crop.

Although the farmers did not deliver barley very freely during the month of December, still the supply continued to be more than equal to the demand, and sales could not be generally effected unless at declining prices. Considering the superior quality of the last barley crop, it is certainly at the present time beneath its intrinsic worth, and still consumers of manufactured barley find no reduction in the prices of any description of its extract. This subject is one of much importance, and it has often been our duty to call the attention of our agricultural readers to a point so very interesting to the community at large. To encourage the consumption of barley ought most certainly to be an object of every person wishing well to the general prosperity, and that the consumption of malt alone may be doubled does not admit of any doubt. The imposition of twelve millions sterling of duties annually on manufactured barley, is the real foundation of the obstructions which the barley farmer meets with in the sale of his crops. That duty to the same amount would be annually paid into the treasury, under a widely different system of excise collection, the experience of the past most sufficiently establishes; and that the alteration in the mode of imposing it

would eventually double the quantity of barley now consumed in the manufactured articles of beer and British spirits, can be perfectly proved by facts. When that administration existed, of which the Duke of Wellington was the head, the beer duty was entirely repealed, and the impost on malt itself was also reduced from 34s. 9d. to 20s. per qr. This was a bold measure of finance, but its success was more than equal to the nerve displayed by his Grace in attempting the alteration. On the high duty system the annual payment into the treasury from malt, seldom exceeded, but was oftener under, two millions eight hundred thousand pounds, whilst by the reduction of the duty it has ever since exceeded five millions sterling; indeed, one season it was nearer six millions than five; still when we reflect on the increasing population, and when we endeavour to calculate the proportion to each individual in the community of beer, drawn from five millions of quarters of malt, we find that the system may with great truth be denominated one of starvation, in as far as the consumption of beer may be considered a necessary of life. Thirty millions of inhabitants, the estimated population of the United Kingdom at the present moment, would be only inadequately supplied, were the consumption of malt double its present amount. That this immense advantage would result from following out the Duke of Wellington's financial principles, as we have already asserted, the whole experience of the past very fully and sufficiently establishes; and that the farther reduction of the malt duty by one-half, would increase the malt consumption to ten millions of quarters annually, must be as evident as any demonstration can be made. The amount of duty paid at present into the treasury would itself be increased by this financial operation; and for any minister to effect the change would only be performing a great duty to the public. The maltster, however, has other subjects to complain of, in addition to the extravagant rates of duties with which he is charged. He is subjected to vexatious fiscal regulations, which very frequently are injurious to his interest, and limit his science of malting. Whatever may be the quality of the barley, whether it be heavy or light, whether it be produced under a southern or a northern climate, he must follow out the same regulations and rules in his process of manufacture, and thus he frequently injures his property, and sometimes renders his malt not fit for the purposes for which it was intended. To charge the duty at once on the barley, would be a remedy for this evil, and would materially reduce the expense of its collection. Nor would the treasury be much more subject to fraud than it is at present; indeed, we may say considerably less so by this proposed alteration,—for it would render the collection much more simple than it is under the present complicated management. The maltster would then be enabled to use his science and his practical knowledge in the best possible manner in the manufacture of malt. He would render it suitable to those purposes for which it is intended, and the general interest would profit by some alteration of the above description. The agricultural members in the legislature should call the attention of both houses of Parliament to this important subject, and also to another vexation under which the growers of barley labour. We now allude to the excessive duty which is collected on each gallon of spirits manufactured in the United Kingdom. From ten to twelve millions of

gallons of bad Geneva and worse brandy are smuggled and consumed in England annually, to the great injury of the landed interest, of the English distiller, of the revenue, and of public morality; and this grievance has its origin solely in the extravagant rates of duty levied in England on British-made spirits. Although the duty charged on foreign spirits consumed here be nearly 23s. per gallon, still this heavy duty must be called only a nominal one; for by adding together the quantities of foreign spirits, legally and illegally imported here for consumption, the duty actually received will be under 4s. per gallon, being one-half less than the present charge is in England on home-made spirits. This system is filled with vice; and even to place the duty in England on home-made spirits, on a level with that actually not charged but paid on foreign spirits, would speedily remove this great evil. It would destroy entirely the trade of the smuggler, and all the immorality by which it is attended. It would strengthen the cause of temperance throughout the empire, and it would be beneficial in the extreme to the public health. The pure extract of malt is admitted on all hands to be a wholesome beverage, whilst foreign spirits are generally, in every respect, the reverse. It would likewise do away with the present necessity of Teetotalism Societies, and many squalid faces amongst their members would, at all events, reassume the marks of health. The revenue also would be considerably improved by the alteration—for the full amount now collected on foreign spirits would still be obtained on the best qualities of them; whilst, by the substitution of wholesome British spirits for the spurious foreign spirits which are, under the present high duty system, smuggled into the country, a large addition would be made to the sum now actually paid into the Exchequer, as duties levied on British spirits consumed in England. Another improvement in the system would be, to allow the rectifiers to retail British gin and British brandies at that strength which would suit the palates of the consumers. Foreign spirits and colonial spirits are now permitted into consumption, at any strength which the dealers in them please; and there cannot exist any well founded reason for depriving the English rectifiers of similar advantages. Superior as home-made spirits most undoubtedly are, even under the present system, still the quality of them would be yet much improved, did the law permit the manufacturer to make full use of his knowledge and science in these operations; and quality, with cheapness, is sure to command the market. In Ireland and Scotland, moderate duties have entirely suppressed the spirits smuggling trade, and the morality of the inhabitants has been proportionately improved. Duties on home-made spirits in England, proportionately moderate, must be attended here by advantages equally important, and then the heavy expense of the Coast Blockade service will be entirely saved to the British treasury. This, of itself, would cause a saving in the public expenditure of from five to eight hundred thousand pounds sterling, annually. It is perfectly clear, therefore, that the cultivators of barley suffer very considerably from the manner in which the malt and British spirit duties are collected, and that the high and unequal rates which are imposed on them, are injurious to the community in general. More than double the quantity of barley at the present time grown, would be required for the necessary consumption; and at least one million of acres of

land, now in a state of desolation, and entirely useless to the people, would be brought into cultivation for the production of this additional quantity. At a period when it is considered necessary to encourage emigration to our colonies, and even to foreign nations, surely the employment of these unfortunate men, in the cultivation of waste lands at home, would be much more beneficial to them than to transport them, for similar purposes, to bring forward into tillage lands in our colonies of a far wilder description; and to the general interest, to dispose of them productively at home, would be of the highest consequence. The wealth created by the improvement of waste lands at home, for the purpose of increasing the growth of barley, would not only most amply pay for the increased expenditure occasioned by this additional consumption, but it would also most abundantly pay annual rents on the capital which would be embarked in these patriotic operations. The great benefit which it would confer, however, would be in finding out still larger channels for the productive employment of the people, by which their means would be greatly increased, and their contentment with their condition in life would be thereby rendered far more certain than it can be under the present high rates of duty system, by which consumption is materially restricted, and in consequence of which complaints are unfortunately daily gaining ground, which eventually may become dangerous to the public tranquillity. These waste lands can be brought into almost immediate cultivation at far less expense than the generally densely wooded lands in Canada, or in any of our other colonial possessions, admit of; and the returns from them when cultivated, must be far more valuable than it is possible for the produce of Canada ever to be, in consequence of the great distance of that country from large markets of consumption. The barley grower has no hope of improvement in his condition, excepting in an increased consumption of his produce, and he may easily, and likewise advantageously to the revenue, and to the entire population, be gratified in these his very moderate views; his fields may be rendered more productive, and more valuable to him than they are at present, and the increased annual wealth created by the alteration, would pay well for an additional consumption of barley by the labouring classes of society.

In Great Britain, lands, which twenty years ago were chiefly devoted to the growth of oats, are now turned into the more valuable system of wheat cultivation; and the supplies of this very material article of agricultural produce have not been increased in magnitude in the great markets of consumption, neither from the north of England, nor from Scotland, during that period, in proportion to the vastly increased demand. The great injury done by the elements to this article, chiefly in Ireland, during the season of 1839, rendered the importation of an unusually large quantity from the Continent absolutely necessary, and thus additional difficulties were created in the money market, by the large remittances of specie to the Continent which this large importation had rendered necessary. Although the prices of oats were kept moderate to the consumers by these importations, still we are persuaded that, had these prices been more remunerating to the producers of them within the United Kingdom, trade would have been improved, and no injury would have been done to the general body of oat consumers. During the current corn season, however, these difficulties, in every probability, cannot occur, for the last crop of oats in Ireland has been a most abundant one; and it may therefore be

confidently anticipated that the surplus of the last crop will most amply supply our markets, at all events, until another harvest be again gathered from the fields. Already large arrivals have come to hand, in all our oat markets from that island, and the quality generally has been so superior, that the deficiency in the stocks of old oats has been in a great measure rendered of very little consequence by this most favourable circumstance. The quality of oats produced this season throughout Great Britain is also fine, and, considering the breadth of land under this description of tillage, the quantity is large. We, therefore, anticipate a fair supply of oats being delivered by British and Irish farmers during the spring and summer months, and that such prices will be obtained as will enable the growers to make good by quantity what they may find themselves losers of by depressed value. One great advantage must, at all events, arise from the present aspect of the oat trade. The money which last year was remitted to the Continent for oats cannot return, and therefore was a great national loss; but the prices paid this season will principally go to Ireland, and enrich that rapidly-improving portion of the British empire. This must, to a certain degree, increase capital in that island, and enable the agricultural improvements there to progress much more rapidly than the untoward crops of 1839 permitted them last year to do; and it will also encourage capitalists to enter into associations with the view to farther improvements, and thus give additional employment to the agricultural labourers. In Ireland agricultural wages are much more moderate than they are in Great Britain, and as a great portion of the waste lands there is the property of the Crown, millions of acres may be brought into a perfect state of tillage there much cheaper than the same quantity of land can by any possibility be cultivated in any of our own colonial possessions. From five to ten pounds sterling of capital, judiciously expended on each acre of waste land on the banks of her rivers, bays, and lakes, will, in a very few years, produce rentals of from two to three pounds per acre, and the soil generally in these places is so rich that the expenses of manure will be saved for perhaps half a century afterwards. To improve lands of this description is an extremely cheap way of purchasing land. When the advantages to be gained from operations of this description become better known than they appear to be at the present period, the capitalists will appreciate them in proportion; and so long as due protection is given by the legislature to agricultural produce, so long must these improvements go forward, and, before long, they must attract the universal attention of the British public, particularly of the monied interest. The grain grown from these sources must always meet with a ready market at fair and remunerating prices, until the supply becomes larger than the consumption; and even then, both wheat, flour, and indeed all sorts of grain and pulse, will always command good markets in our own colonial possessions, and also in all the Southern States of America, where climate prohibits the cultivation of these articles so necessary to the human race. The great importance of Ireland as an agricultural country, is already partly exemplified in the vast abundance of oats this season produced by her, even in the infancy of her agricultural science. She will mainly supply Great Britain with this article now for many months to come. She will prevent any large exportation of the precious metals in exchange for foreign oats during the current year, and by so doing, she will, in some mea-

sure, give additional means for the consumption of manufactured goods, and of different other articles of use whereon the prosperity of commerce principally depends. As confidence gains ground in the safety of property embarked in Irish pursuits, her wealth must be increased, and no murmurs nor complaints of want of food and want of labour will be heard amongst her inhabitants. The shipments of oats made already from Ireland to Great Britain have been sold at fair prices to the importers, a decline not having occurred in them in proportion to that which has been noted in wheat and in barley, and still the duty now payable on their importation from foreign states is now a fair protection to our home-growers of this article; indeed, according to its intrinsic value, it is generally better protected against foreign competition than wheat.

Since our last publication the markets have been fairly, but not abundantly supplied with beans and peas, against the quality of which few well grounded complaints can be made. Generally, the quality has been of a superior description, and any destructive decline in their value has thereby been prevented. The duty has increased in the course of December, but still it cannot as yet be called a more than protective one. The supply has rather exceeded the demand, and a decline of about 3s. per qr. must be noted on both articles since the beginning of last month. The value of them, considering their fine quality, being at the present period rather moderate than otherwise, no very material alteration can be expected to take place in them, until we can gather some knowledge of the prospects for all descriptions of spring corn, and of pulse, for the next harvest. The favourable state of the weather until the middle of December has permitted great progress to be made in getting the land ready, even for the reception of the spring seeds; and with weather equally favourable, when the spring season arrives, agricultural prospects will be cheering indeed to all classes and interests in the United Kingdom.

The state of the corn trade in foreign markets is not in any way interesting at the present moment: the dates from the Baltic, and from the north of Germany, are in due course of post. In Poland some purchases of fine wheats had been made at low prices for British account, for delivery when the rivers become again navigable, but in the ports of immediate shipment prices continued too high for speculative purchases of this description. From America the letters are dated early in December, but they contain no agricultural news of the least importance.

CURRENCY PER IMP. MEASURE.

Dec. 28.

	Per Qr.	White.	Per Qr.
WHEAT, Essex and Kent, red	60	62 64	62 66
Irish	50	60	Do. 60 64
Old, red	62	66	Do. 66 70
RYE, old	36	38	Bere 38 41
BARLEY, Grinding 28 30 32 Malting	34 36	Chevalier ..	37
Irish	25	27	Bere 24 25
MALT, Suffolk and Norfolk	64	70	Brown... 56 60
Kingston and Ware	64	68	Chevalier 68 —
OATS, Yorksh. & Lincolnsh. feed	24 26	Potato... 25 26	
Youghall and Cork black	21 22	Cork, white	22 —
Dublin	21 22	Westport	23 23
Waterford, white	21 22	Black ..	23 23
Scotch fowl	25 26	Potato... 25 26	
Clonmel	23 24	Limerick	22 24
Londonderry	23 —	Sligo	22 23
Newry	23 24		
Galway	19 20		
BRANS, Tick, new	38 40	Old... 42 44	48
PEAS, Grey	36 38	Maple... 40 42	
White	36 38	Boilers ..	38 40

SEED, Rape.....	30l. 32l.	Irish.....	28l. per last.
Linseed.....	41 46		
English Red Clover, fine, 70	80	90 per cwt.	
White.....	66 68 74		
FLOUR, Town-made 55	—	Suffolk 43	44 pr sk. of 280 lbs.
Stockton and Norfolk,	42 43		
FOREIGN GRAIN AND FLOUR IN BOND.			
WHEAT, Danitic.....	44 46		
Hamburg.....	40 42		
BARLEY.....	18 21		
OATS, Brew.....	22 24	Feed... 16 18	
BEANS.....	30 —		
PEAS.....	30 —		
FLOUR, American, per brl.....	26 —	Baltic.. 23 —	

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, Dec. 25th, 1840.		AVERAGES from the corresponding Gazette in the last year, Friday, Dec. 27, 1839.	
	s. d.		s. d.
WHEAT.....	50 1	WHEAT.....	66 5
BARLEY.....	31 6	BARLEY.....	40 5
OATS.....	21 4	OATS.....	23 11
RYE.....	32 10	RYE.....	38 6
BEANS.....	41 1	BEANS.....	42 6
PEAS.....	40 5	PEAS.....	43 7

IMPERIAL AVERAGES.

Week ending	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Nov. 13th ..	62 2	34 8	22 0	35 8	44 0	42 0
20th ..	61 8	34 7	21 11	35 8	43 10	42 10
27th ..	60 0	33 6	22 2	34 10	43 0	43 7
Dec. 4th ..	59 7	32 7	22 1	34 11	42 4	41 11
11th ..	58 10	33 0	21 11	34 4	41 4	40 1
18th ..	59 1	31 6	21 4	32 10	41 1	40 5
Aggregate Average of the six weeks which regulates the duty.....	60 3	33 2	21 11	34 9	42 7	41 10
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London	26 8	12 4	15 3	18 3	6 6	8 0
Do. on grain from British possessions out of Europe.....	5 0	0 6	2 0	3 0	0 6	0 6

Account shewing the Quantities of Grain, Meal and Flour, imported into the United Kingdom, during the month ended the 5th Dec., 1840; the Quantities on which Duties have been paid for Home Consumption during the same month, and the Quantities remaining in Warehouse at the close thereof.

Foreign Grain and Flour.	Quantity Imported.	Quantity entered for consumption.	Quantity remaining in warehouse.
	qrs. bush.	qrs. bush.	qrs. bush.
Wheat, from British Possessions	3602 3	1639 0	2061 3
Peas, from do.....	1841 4	1841 4	....
Indian Corn, do.....	230 0	230 0	....
Wheat, foreign	34543 4	3298 4	52617 4
Barley, do.....	16137 2	46200 2	7053 6
Oats, do.....	8186 1	402 3	7148 2
Rye, do.....	....	....	3325 4
Peas, do.....	23517 6	23466 3	904 2
Beans, do.....	7667 4	7576 3	935 4
Indian Corn, do.....	1940 6	3872 2	27 6
Buck Wheat, do. ..	5 1	5 1	....
	cwts. qrs. lbs.	cwts. qrs. lbs.	cwts. qrs. lbs.
Flour, from British Possessions	98020 3 27	55186 3 19	42763 3 27
Flour, foreign	34287 2 17	262 0 6	38516 0 1

STOCK OF GRAIN, &c., IN BOND, IN THE PORT OF LONDON, ON THE 5th DEC.

Wheat.	Barley.	Oats.	Peas.	Beans.	Rye.	Flour.
qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	cwts.
28,005	457	1,079	200	303	—	27,842
Cloverseed, 20,454 cwts.						

PRICES OF SEEDS.

	Dec. 28.
Linseed, English, sowing	55 60
Baltic	— crushing 45 50 per qr.
Mediter. & Odessa	46 53
Hempseed, small.....	34 36 large.. 38 40
Coriander.....	10 16 old.... 18 — per cwt.
Mustard, brown, new ..	16 21 white.. 12 13 pr. bush.
Turnip Seed, new Swedes ..	— 10 18
Trefoil	10 23 fine new 25 30
Rapeseed, English.....	30l. 32l. foreign 28l. 30l. per last.
Rye Grass, English.....	30 42 Scotch 13 40
Tares, winter	10 12 Spring — —
Large, foreign.....	8 9
Clover, English, red	55 75 white 48 60 per cwt.
Flemish.....	40 65 do.. 45 48
New Hamburg	52 60 do.. 46 60
Old do.....	35 58 do.. — — nominal.
French	50 60 do.. — —
Old do.....	40 50
Canary, new.....	82 84 extra 36 89
Carraway, old.....	50 53 new 50 52

PRICES OF HOPS.

BOROUGH, DEC. 28.

	East Kent.	Mid. Kent.	Weald of Kent.	Sumex.	Farnham.
	s. s.	s. s.	s. s.	s. s.	s. s.
Bags, 1836	55 to 75	55 to 75	55 to 65	— to —	—
Pocks, 1836	55 .. 85	55 .. 85	55 .. 78	55 .. 75	—
Bags, 1837	none	none	none	none	—
Pocks, 1837	—	—	—	—	—
Bags, 1838	90 .. 116	90 .. 116	90 .. 100	—	—
Pocks, 1838	100 .. 130	100 .. 130	100 .. 116	90 .. 110	—
Bags, 1839	130 .. 170	130 .. 170	100 .. 130	—	—
Pocks, 1839	170 .. 210	170 .. 210	150 .. 170	130 .. 140	240 300
Bags, 1840	140 .. 300	—	—	—	—
Pocks, 1840	140 .. 340	—	—	—	—

POTATO MARKET.

SOUTHWARK, WATERSIDE, DEC. 28.

PRESENT PRICES AS FOLLOW:—

York Reds.....	—s. to 90s. per ton.
Scotch Reds	80s. to 85s.
Devons	—s. to 80s.
Jersey & Guernsey Blues ..	—s. to 70s.
Jersey Whites	—s. to 65s.
Kent Essex & Whites..	60s. to 70s.

WOOL MARKET.

BRITISH.

Dec. 28.

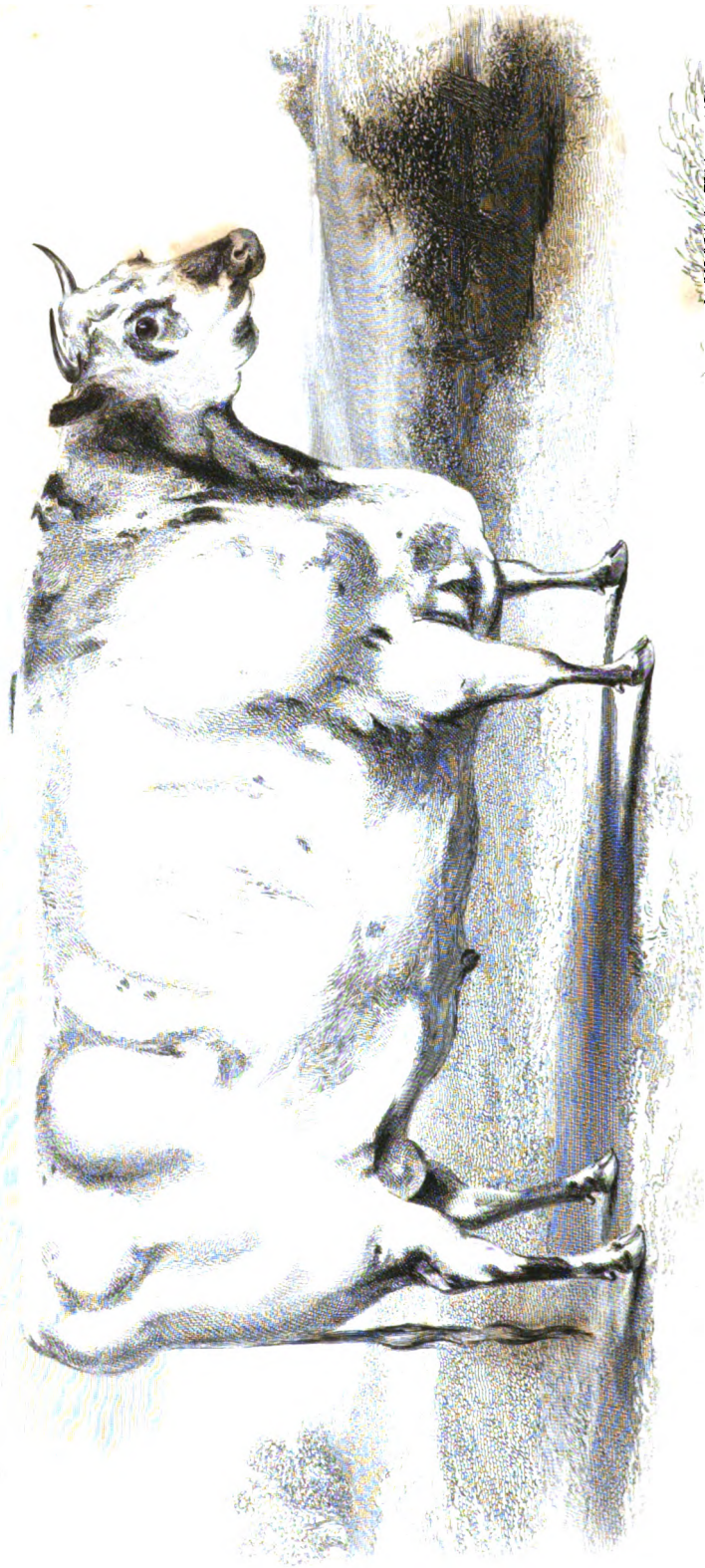
	s. d.	s. d.
Down Teggs	1 2 to 1 2	1 2
Half-bred Hogs	1 1 1 2	1 2
Ewes and Wethers	0 11 1 0 1 0	1 0
Flannel do.....	1 0 1 2	1 0
Blanket Wool	0 5 0 8	0 5
Skin, Combing.....	0 10 1 2	1 2

PRICES OF MANURES.

Subjoined are the present prices of several sorts of manure:—

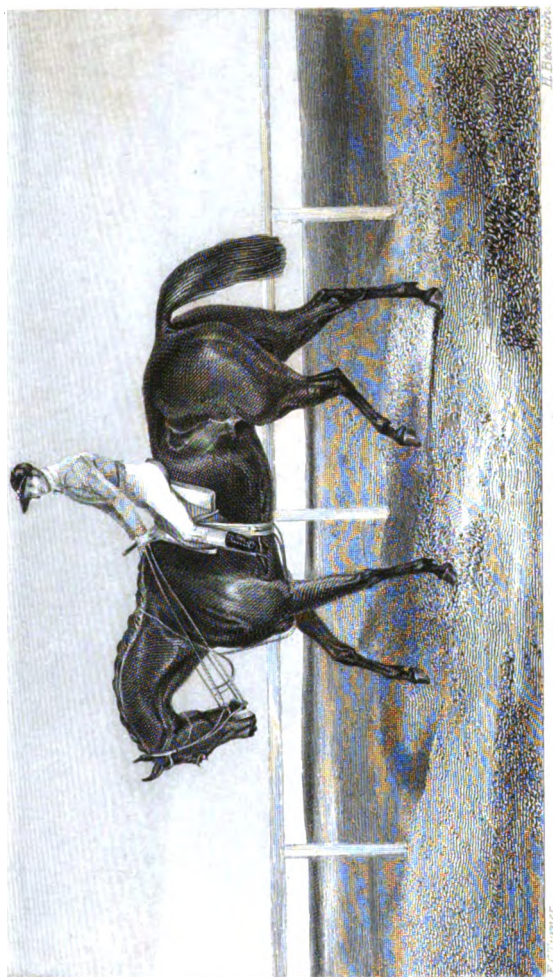
Bone-dust, 21s. per qr. of 8 bushels.
Half-inch ditto, 20s. per qr. do.
Rape-dust, 6l. 15s. per ton.
Rags, 4l. to 4l. 10s. per ton.
Graves, 5l. to 5l. 10s. per ton.
Gypsum, 38s. per ton.
Salt, 2l. 5s. dirty, 2l. 15s. clean, per ton.
Lance's Carbon, 12s. od. per qr.
Humus, 14s. od. "
Soap ashes, 10s. per ton.
Artificial Manure, 12s. per qr.
Poittevin's Patent Disinfected Manure, 13s. 6d. per qr.
Nitrate of Soda, 20s. od. to 2s. od. per cwt.
Nitrate of Potash or Saltpetre, 27s. to 28s. 6d. per cwt.

No. of Shares.	IRON RAILWAYS.	Price per Share.	Div. per Share per Ann.	Shares.	MINES.	Price.	Divided
6,900	Birmingham and Derby Junction 1001 sh 73/a4t	73/a4t		4,000	Altan 501 sh 124/pd		
9,500	Ditto and Gloucester 1001 sh 73/a7t	73/a7t		1,000	Ditto New 151 sh 124/pd		
15,000	Bristol and Exeter... 1001 sh 35/a7t	35/a7t		10,080	Anglo Mexican (iss. 51 pm) 1001 sh		
9,800	Ditto and Gloucester... 501 sh 24/pd			33744t	Ditto Subscription 251 sh		
7,500	Cheltenham & Great West. Union 1001 sh 624/pd	28/a9t		10,000	Ditto Mint 251 sh 10/pd		
5,000	Chester and Crewe 501 sh ...	524/a10t		8,000	Blaenavon Iron & Coal 501 sh 45/pd		
3,000	Clarence (Durham)..... 1001 sh			2,000	Bolton 1501 sh		
8,000	Dublin and Kilkenny 1001 sh 24/pd			1,000	Ditto New 501 sh 20/pd		
64,000	Eastern Counties 251 sh 25/pd	84/a10t		20,000	Ditto Scrip 251 sh		
64,000	Ditto Debentures . . . 81 sh ed. . . 21/pd	44/a15t		20,000	Bolivar Copper Company .. 151 sh	11a1t	
18,000	Edinburgh & Glasgow 401 sh 35/pd	25/a9t		10,000	Ditto Ditto Scrip New .. 31 sh	51a1t	
10,918	Grand Junction 1001 sh 210/a10t		14/pd ct	10,000	Brazilian Imperial 351 sh 201/pd		
10,918	Ditto Half Shares 501 sh 40/pd	984t	14/pd ct		Iss. 51 pm	12a14t	
10,000	Great N. of England 1001 sh 701/pd			11,000	Ditto St. John Del Rey 301 sh 144/pd	14a12t	
25,000	Great Western 1001 sh 651/pd	884/a1t		12,000	Brazilian Macabous Cokes .. 251		
25,000	Ditto Half Shares 501 sh 401/pd	501/a1t		90,000	British Iron Comp. 1001 sh 551/pd		
37,500	Ditto Fifties 201 sh 41/pd	104/a1t		10,000	Cata Branca 101 sh 71/pd		
8,000	Hull and Selby 501 sh 47/a10t			8,500	Colombian 551 sh		
36,000	London and Brighton 501 sh 413/t a1t			1,500	Ditto Scrip 111 sh		
26,000	London & Croydon . . Av. 141 18/d	12a10t		10,000	Candonga 201 sh 84/pd		
6,384	Ditto Script 91 sh	12/a10t		10,000	Capo d'oro 301 sh 124/pd		10t
90,000	London and Greenwich 201 sh 74/a10t		5a per sh	4,000	English Mining Comp. 251 sh 14/pd		
9,000	Ditto New 101 sh 17/a18t		11 per sh	20,000	General Mining Association 301 sh		
80,000t	Ditto Debentures (various amounts)				111 pd		
24,000	London & Blackwall 251 sh 224/pd	174/a10t		9,904	Hibernian 501 sh 111/pd	24/a10t	
1,500	Leicester and Swannington . 501 sh	55t	24t	5,739	Mexican Company 1001 sh 581/pd	21a10t	
2,100	Leeds and Selby 1001 sh		4t per sh	5,000	Minas Geras 201 sh 121/pd		
6,100	Liverpool and Manchester. 1001 sh	185t	14/pd ct	14,400	Real del Monte registered Av. 1sh		
11,475	Ditto Quarter Shares 501 sh 43t		94/pd ct		Ditto Ditto unregistered	24a1t	
7,908	Ditto Half Shares 501 sh 86t		94/pd ct	17,066	Ditto Loan (Notes)..... 1501 sh		
26,000	London & S. Western, late London and Southampton Av. 381 17a 9d	54/a15t	2t persh	5,000	Redmoor (consolidated) 51 sh 41/pd		
6,000	Ditto Portsmouth Branch 501 sh			10,000	Rhyney Iron 501 sh	30/a10t	
		35t	5t per ct	28,267	United Mexican 401 sh 401/pd		
25,000	London & Birmingham. 1001 sh 901/pd	170/a10t	8t per sh	5,881	Ditto Scrip 2f pd	24/a10t	
25,000	Ditto Quarter Shares 251 sh 51/pd	67/a8t	14/pd sh	8,857	Ditto ditto (New) 51 pd	44/a10t	
31,250	Ditto New 321 sh 24t	48/a9t		0,000	Wicklow Copper 51 sh 51/pd		
15,000	Manchester & Leeds 1001 sh 701/pd	76/a8t					
15,000	Ditto Half Shares 501 sh 251/pd	28/a10t					
30,000	Manchester and Birmingham 701 sh 40/pd	96/a8t					
15,714	Ditto ditto Extension 101 sh 71/pd	31a4t					
10,000	Midland Counties 1001 sh 75/a7t						
10,000	Ditto 1/2 Shares of 251 . . 51t	84/a9t					
15,000	North Midland 1001 sh 75/a6t						
15,000	Ditto Half Shares . . 401 sh 40/pd	38/a10t					
12,000	Northern & Eastern 1001 sh 40/pd	28/a10t					
3,762	Seyern and Wye Average 27t sh		2112apsh				
1,000	Stockton and Darlington..Average 106t 13a 4d	250t	14t per sh				
28,000	S. Eastern and Dover 501 sh 98t	12t a1t	212a p sh				
6,000	York & North Midland 501 sh	65/a7t					



Manuscript.
History of the Great Pyramids

1847. Printed by J. G. & Co. New York.



Summer lot.
Flower of the Great Sp. Flyer.

Journal of the American Medical Association, 2010; 304:1071-1076

THE FARMER'S MAGAZINE.

FEBRUARY, 1841.

No. 2.—VOL. III.]

[SECOND SERIES.

PLATE I.

The subject of the first Plate is a short-horn Ox, bred by Earl Spencer, on his farm at Wiseton, and fed on his lordship's farm at Althorp. This Ox was got by his lordship's bull Firby, was exhibited at the Smithfield Show in December last, and obtained the Gold Medal as the best animal in any class. To expect that an animal should be faultless would be vain, but we can confidently state that this Ox approached as near perfection as any we have ever seen. The plate, engraved by Beckwith, is taken from a painting by Mr. W. H. Davis of Chelsea, and does great credit to the well known talent of that gentleman, as an animal painter.

PLATE II.

LAUNCELOT; WINNER OF THE GREAT ST. LEGER, 1840.

Launcelot comes of good stock, and his performances were such as to warrant the high opinion entertained of him by his backers. He was bred by the Marquis of Westminster, and is by Camel, out of Banter, own brother to Touchstone, and was trained by Scott. At two years old he won the Champagne Stakes at Doncaster by a neck, beating Pathfinder (second), Mountain Sylph (third), Theon, Interlude, Dr. Caius, (filly out of Fancy), and Queen Bee. On the Thursday, at the same meeting, he was beaten a neck by Theon, Fitzroy (third), beating Black Beck, Pathfinder, Mountain Sylph, Naworth, a colt out of Emigrant's dam, La Femme Sage, and Calypso. As a three year old he ran for the Derby, and was first favourite at starting, and was the only nag out of Scott's stables; he ran second to Little Wonder, beating Melody colt, Confederate, Assassin, Scutari, Amaranth, Solace colt, Muley Ishmael, Theon, Bokhara, Sophocles, Monops, Pathfinder, Angelica colt, Farce colt, and a colt out of Gift. He walked over for a Produce Stake at Liverpool, but paid forfeit in preference to meeting "Cornuto," for a Foal Stakes at the same meeting. By good luck, good generalship, and other adventitious circumstances, he won the Leger.

EXPERIMENTAL FARM.

REPORT,

BY THE COMMITTEE APPOINTED TO CONSIDER THE PETITION OF THE WESTER ROSS FARMING SOCIETY, PRAYING THAT THE HIGHLAND AND AGRICULTURAL SOCIETY WOULD ESTABLISH AN EXPERIMENTAL FARM.

(From the Prize Essays and Transactions of the Highland and Agricultural Society of Scotland, No. 52, vol. xiii., page 497.)

The committee find that this subject has frequently before been under the consideration not only of the directors and of special committees,

OLD SERIES.]

but also of general meetings of the society. On all these occasions, the result has been a resolution that it would be inexpedient for the society, if not also inconsistent with the principles of its constitution, to engage in the establishment of an experimental farm.

The committee may refer to the two last occasions on which this subject was discussed and disposed of, viz., in 1835 and 1837. On the former occasion, the opinions of the directors were embodied at length in a report, which was submitted to a general meeting of the society, 2nd July, 1835, and, after a full discussion, the report was unanimously adopted. In 1837, 6th July, the matter was again considered. The views of Mr.

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[No. 2.—VOL. XIV.

Nairne, of Claremont, who urged the reconsideration of the question, will be found fully stated in the minutes of directors, 27th December, 1836. The subject was again, on the motion of Mr. Nairne, fully discussed at the general meeting of the society, on 10th January, 1837, when the feeling of the meeting being decidedly against the society embarking in the scheme, Mr. Nairne withdrew his motion.

The following was the report of the directors, which was unanimously approved of by the society at its general meeting in 1837 :—

"The directors resumed consideration of the communication from the Duke of Gordon, transmitting a copy of the letter addressed to the society regarding the establishment of an experimental farm. The letter having, in pursuance of the instructions of last meeting, been circulated to the directors and deliberately considered, and members having now given their opinions, the board resolved to submit their opinion in the shape of a report to the general meeting, as follows :—

"Transmitted through such a channel, the directors gave the suggestions the fullest consideration, but they are sorry they cannot recommend to the society to adopt the proposal contained in the paper. In point of expense, it would far exceed the amount of funds at the disposal of the society; and it is, besides, in a great degree inconsistent with the principle upon which the society uniformly acts.

"The directors are not prepared to say, that although similar establishments, hitherto tried, have all proved failures, an experimental farm could under no circumstances be productive of benefit; but it must, under any circumstances, be conducted at a great expense, its objects being in a great measure incompatible with attention to profitable return for its operations; and they are well convinced that such a farm, and for such purposes as are contemplated in the 'suggestions,' would, in a very short time, exhaust the capital, instead of the portion of its annual income proposed by the projector.

"Besides this fundamental objection, the plan is inconsistent with the present system of the society, which is not to be itself the experimenter, but to encourage, stimulate, and in some cases partially remunerate those who are about to make, or who have made, experiments for the improvement of agriculture. In conducting such experiments, the most useful course will generally be followed by those who must necessarily keep ultimate profit in view; and the directors are of opinion that the society have wisely left it in their hands, aiding them as far as possible, by collecting and digesting information as to the objects to be kept in view, and the most probable means of attaining them; by offering premiums to those who, keeping these objects in view, will conduct their experiments on the principles pointed out by the society; and finally, by promulgating the results regularly through their quarterly transactions, for the use of the public generally.

"There is no doubt that the application of scientific principles, and extremely accurate observations of results, which might be commanded under the society's auspices, are important objects, and have been attained in horticulture; but the directors conceive the objects of investigation in agricultural practice to be of so extended and diversified a character, that it cannot be so well carried on in one spot, one climate, and nearly one soil, as by the society's present practice, which brings it at once to the doors of a great many acute examiners in every part of the country, and causes the trial to be made

simultaneously under every possible variety of situation and circumstance. Nor is the whole advantage of the society's present system to be confined to these points; another and important result is the habit of mental exertion thus fostered among the agricultural classes, and the practical experience which each successive experiment supplies, opening up new trains of interesting speculation, and giving confidence to push forward in hopes of farther discovery. The directors point with satisfaction to your proceedings, as a proof that there is no difficulty of getting correct reports of numerous and complicated experiments from practical men, and no want of enterprise where there is a reasonable prospect of success in any new inquiry, which, if deemed too hazardous for the tenant's exertions, is generally taken up by some public-spirited proprietor, who is willing to encounter the risk in hopes of producing a result which may be useful to the community at large.

"The directors fear, therefore, that even supposing the funds requisite for such an undertaking were procured, the scheme, as detailed in 'the suggestions,' would have the effect of cramping the energies of private experimentalists, which they must regard as the most useful channel for research, by inducing them to look exclusively to the society for results which they are now in the habit of working out themselves.

"They have only to add, that if an experimental farm on a well-digested plan and moderate scale should be thought an adjunct for the investigation of certain phenomena, of which cases may perhaps be conceived offering too uncertain or too remote chance of advantage for individual speculation, the means of carrying it on being procured and placed at the disposal of the society, they would do their utmost to make the scheme conducive to the public advantage."

The committee, in considering the application for an experimental farm, which has lately been made by the Agricultural Society of Wester Ross, have not allowed their minds to be influenced by the fact of similar applications having been, on former occasions, deliberately weighed and rejected. They have considered the question on its own merits. But having unanimously come to be of opinion that the society cannot accede to the proposal, it is an important circumstance that this also was the result of an equally deliberate consideration of the subject by former boards of directors, as well as by the society in its collective capacity.

While the committee fully admit that advantages might result from the establishment of a farm, to be set apart for the performance of useful experiments, and where they should be the means of putting to the test of practice the suggestions of agriculturists, as well as of ascertaining the principles on which agriculture, both as a science and as an art, is founded, the committee see too plainly that there are difficulties in the way of such an establishment, which any means at the command of the society could not enable it to overcome.

The committee observe, that in the two last memorials which the directors have received, recommending the establishment of experimental farms, it is either assumed or expressly stipulated, that they are to be conducted on what are called "scientific principles."

Now it has appeared to the committee, that the exact nature of an experimental farm conducted on such principles is not distinctly apprehended

by many persons, and especially by those who reckon with certainty on its yielding a remunerating rent. The primary object of such a farm being to make experiments, and by investigation of principles to endeavour to derive aid from other branches of knowledge (as chemistry, vegetable and animal physiology, geology, and mechanics) for the elucidation and improvement of agriculture, it would be inconsistent with the principle of such an establishment to conduct it so as to yield a profitable return. Were such a farm even limited to the trial of different practices in agriculture, it is manifest that what is bad, as well as what is good, must be the subject of experiment; and that the experimenters must reckon upon failure as well as success, it being indeed necessary for all practical purposes to ascertain the causes of both results. There would thus inevitably and constantly be loss on a farm conducted on such principles, even if a wider range of investigation were avoided, which, however, must be comprehended under the designation of a farm conducted on what are termed scientific principles. The investigation now pointed at would not only include, for example, experiments on the application to the soil of calcareous and all other matters which stimulate or improve it, but would embrace an inquiry into the way in which the effect is produced, whether through the medium of the soil or through the medium of the organs of growing plants. It would include not only the making the soil productive by the various means determined by experience, but an investigation of the chemical constitution of the soil, and of the causes of those changes in its constitution and character which different substances produce. Such a train of experiments, it is obvious, would be altogether distinct from the proper business of the cultivator, and would require investigations in chemistry and other branches of science which are beyond the limits of agriculture as a practical and profitable art.

The object of an experimental farm, in short, is not to raise produce by such economical means as will yield a rent, but to perform experiments which can yield no pecuniary returns. Were it proposed merely to establish a farm, and conduct it in the best possible manner, such a farm would be a *model* or *pattern* farm, and not an experimental one, in the sense in which the term ought to be employed. But little advantage, it appears to the committee, would result by an establishment even of model farms, under the direction of the Highland and Agricultural Society. Such a farm would, for any useful purpose, need to show economy of labour and expense, which it is not to be supposed it could possibly exhibit. It is not, assuredly, the merely raising a great quantity of produce, that would constitute a farm deserving of being regarded as a model. This produce must be raised with a due economy of time and capital, otherwise it would fail in serving as a useful pattern. But it can scarcely be hoped that a farm, managed by any public institution whose directors are constantly changing, could be conducted with the same economy of time and expenditure, and the same prudent adaptation of means, as in the case of a farm under the constant direction of a skilful agriculturist, who devotes his whole time and thoughts to the subject, and who has a deep personal interest in the economical results. A model farm, therefore, could not be managed by the directors of this society with the same economy or the same success as an ordinary farm

belonging to, and managed by, any intelligent agriculturist.

But, independently of this general objection, founded on the management of a farm by a public and fluctuating board of directors, there would be expenses attendant upon a model farm, by whomsoever conducted, which would make any profitable return more than doubtful. If the farm is to exhibit the best of everything known in the art, whether of grain, or stock, or implements; if, also, it is to adapt itself constantly to the improvements which are made in the various departments of agriculture, by purchasing what is new, and discarding what is inferior or old-fashioned,—the farm must manifestly be conducted at an expense far greater than that at which any other farm in the country is managed.

Farther, in regard to the practical utility of the establishment, it deserves to be remembered that, however successful and however profitable might be the operations on a model farm, wherever situated, it does not follow that the same operations would, in other parts of the country, be equally successful. The several counties of Scotland present such varieties of climate, soil, and other material conditions, that it could never be certainly predicted that the particular crops or manures, or operations generally, which had answered well in one district of Scotland, would answer equally, or at all, in every other. If this view be correct, great doubt arises as to the amount of benefit which would result to agriculturists from a model farm; and the committee feel the force of this objection the more strongly on perceiving that, in one of the proposals lately submitted to the Society, it is contemplated to have a committee of experimenters in every county, whose object it should be to ascertain whether the roots and seeds which succeeded well on the Society's farm were equally adapted for other districts of Scotland.

If it is said, that a stimulus would, by a model farm, be given to agriculturists to adopt on their own farms the most approved system, the committee would observe, that every farmer is already under the strongest motive to adopt the most approved system, and to apply it successfully, viz., his own interest and a regard for public opinion. At all events, as already noticed, the knowledge that a particular operation or practice had succeeded on the society's farm might fail to convince individual farmers that, in different circumstances, and with less command of resources, the same operation or practice would succeed upon theirs.

This view also affords an answer to another remark which might be made in recommendation of a model farm, that, by publishing in the society's transactions journals of all the operations conducted on it, the agriculturists of the country would become acquainted with the most approved modes of culture. Again the committee must observe, that it would be of no importance to communicate such information, unless it were accompanied by an assurance that the same system would succeed on other farms, different in soil, climate, and elevation, and other respects. Farther, it may be remarked, that there are few or no material discoveries or improvements in agriculture which are not almost immediately made known through the press, and especially through the means of agricultural societies, at their shows and meetings. So that the object in view is obtained already, without exposing the resources and reputation of the society to risks of a more formidable character.

For these reasons, the committee think that a model farm, in the proper sense of the term, would be attended with no great practical benefit to agriculturists,

and would, if conducted or superintended by the directors of this society, be attended with great difficulties and ruinous expense. Much more advantage results from the examples which abound in all parts of the country of well conducted farms in the hands of intelligent individuals; for the operations on such farms are far more likely to be the subject of imitation, than those of one farm situated in a favoured district, and conducted by a public body, who would be supposed to manage it without much economy of means. A model farm may perhaps be useful in such countries as Russia or Germany, large portions of which are still unreclaimed from a state of nature, and in no part of which agriculture has reached the same perfection as in this country; where, moreover, there is neither the same enterprise on the part of agriculturists, nor the same immediate knowledge of any important discoveries, as in this country. It is understood that model farms for the encouragement of agriculturists have been, in these countries, established by the authority of government, and are supported out of the national funds. But the case is very different in Great Britain, to almost every region of which, especially in Scotland, agriculture in its most improved state has reached, or is fast extending; and where, of all countries in the world, less artificial stimulus is necessary to foster discovery and improvements in the arts.

With regard, again, to an experimental farm, which is more particularly the object of the memorials before referred to, it appears to the committee that, though advantages might result from it by the performance of experiments on a great scale, which individuals have not the means to execute, there is not that necessity for it, and there is not the probability of even any practical utility from it which seems to be expected. There is scarcely a useful experiment which there are not agriculturists in the country ready to make. Indeed there is scarcely any extensive and intelligent farmer who is not engaged in experiments of some kind or other; and these experiments, it is to be observed, are performed under circumstances the most favourable for leading to useful results, and ultimately to general imitation. When the results are successful, there are innumerable channels by which they can be communicated to the country; and there are near all such farms agriculturists sufficiently observant of what is going on, who will avail themselves of what is good, and reject what seems to be erroneous.

It appears very doubtful to the committee, whether those gentlemen who are desirous that this society should embark its funds and revenue in an experimental farm, have duly considered the amount of capital necessary for such an undertaking. The late Sir John Sinclair, who was a strenuous advocate for an experimental farm, calculated that a sum of 5000*l.* a-year would be required to carry it on. Mr. Stephens, the experienced and intelligent editor of the *Quarterly Journal of Agriculture*, who also contends for the utility of experimental farms if properly conducted, has lately given a series of minute calculations on the same subject. Mr. Stephens enters into calculations as to the extent of land, as well as the amount of funds, necessary for such a farm. He states that the smallest extent of the fields should be five acres; and certainly they could not be smaller, if the experiments are to be made in the ordinary circumstances of a farm. He supposes that there should be experiments always going on in these fields, with four varieties of wheat, and four varieties of each of the other cereal grains, as well as with the other plants in ordinary cultivation. In like manner, he assumes

that there should be trials made with different kinds of stock. The result of his calculation is, that not less than 5000 acres of arable and pasture land would be required, to carry on experiments in merely the ordinary branches of agriculture,—for which the ground rent alone would be at least 5000*l.* a-year, and the capital necessary for stocking it 20,000*l.*

Now, in whatever degree the accuracy of these calculations may be disputed, it is yet apparent that the sum required for stocking such a farm as would be in the least degree worthy of being regarded as a national institution would be very large, and vastly exceeding what the Highland Society could apply to it, without a sacrifice of all the objects which have hitherto occupied its attention. They must either take a lease, or make a purchase of land to a large extent; they must provide more than the usual accommodation of offices required by farms of the superior class; they must stock it at a greater expense than ordinary farmers would do; they must further employ a practical agriculturist possessed of the skill and intelligence necessary for conducting an extensive farm; and farther, if scientific inquiries were to be pursued, they must obtain the service of one or more persons possessed of the necessary scientific knowledge, and must provide the philosophical apparatus required for the investigations. It seems to be vaguely assumed, indeed, in one of the memorials, that a piece of land extending to from 500 to 1000 acres would be sufficient for a farm of this kind; but even if the extent could be limited to the lowest of the quantities, the amount of capital, necessary expenditure, and the probable loss, would certainly far exceed what this society could make good.

The committee cannot believe for a moment, that this society can so advantageously employ the funds at its command, in endeavouring to set an example of good farming to others, or in making experiments with a view to discovery and improvement, as by encouraging the agriculturists of the country to afford these examples, and make these experiments. This has been the course which the society has pursued ever since its institution; and no sufficient reason has yet been assigned, to shew that it would be wise to abandon a course thus sanctioned by experience.

With respect to the application of principles derived from other branches of knowledge, or what are called scientific principles, in the elucidation of agriculture,—the society has not been inattentive to this subject, and in its recent premiums has called attention, in an especial manner, to this course of investigation. Although agriculture is to be regarded as a practical art, it is not to be the less dependent upon principles; and it cannot be doubted that science, as applied to agriculture, is calculated to conduce to its perfection, in the same manner as in the case of the other principal arts,—as, for example, in the case of the dyeing manufacture, to the perfection of which chemistry has been rendered eminently conducive,—in the case of the smelting of ores, and mining engineering, to which both chemistry and geology have lent most important aid; and the numerous other arts familiar to every well-informed man. But it is to be observed, that chemistry and vegetable physiology are the subjects of study by a class of persons distinct from the agriculturist, and that it is only when *results* are obtained by the silent and slow investigations of scientific men, that they truly fall within the province of the agriculturist. These experiments, it is to be observed, are performed in the laboratory, or at the utmost, on small plots of ground. It is not necessary that there

should be a farm provided for such experiments. Impressed with these views, the committee would recommend that the directors should extend to the utmost degree, those rewards that may induce scientific inquirers to bring the aid of their knowledge to the assistance of the practical agriculturist. The committee would beg to make the following suggestions, in regard to the premiums offered and the subjects proposed by the directors for scientific investigations.

In the first place, they think the amount of the premiums too small, even if, according to the terms in which they are expressed, the directors could award the full sum of 50*l.* to a memoir on any one of the five subjects there enumerated. Any one of these subjects would entail a sacrifice of time and trouble on the part of experienced chemists, which would not be sufficiently remunerated by any sum less than 100*l.*; for it will be remembered that the investigations are such, as could only be carried on by a person of high scientific attainments. In the next place, the committee would suggest, as an additional subject, a memoir on the results which have been or may be deduced from the most recent scientific investigations of eminent chemists and physiologists, in so far as they are practically useful to agriculturists, and may be proper to be followed in the management of a farm.

EXTRACT FROM THE MINUTES OF A MEETING OF THE DIRECTORS OF THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, HELD ON 16th DECEMBER, 1840.

"Resolved unanimously,—That the Report of the Committee be approved of, and that a copy thereof be sent to the Wester Ross Farming Society, as an answer to the petition transmitted by them. It is further ordered, that the report be published in the next number of the society's transactions, and that a few extra copies be printed as an extract from the transactions."

ON EXPERIMENTAL AND MODEL FARMS.

Having very recently reiterated our opinions in reference to the establishment of "Experimental Farms," we should not have again adverted to the question at this moment, but for the announcement of a report from a Committee of the Highland Agricultural Society, appointed to enquire into the subject, and which report will appear in the "Farmer's Magazine," published on the 1st of February. A petition having been presented by the Wester Ross Farming Society to the Highland Agricultural Society, praying that Society to establish an "Experimental Farm," a committee was appointed to consider and report upon the prayer of the petition—a duty which has been performed in a manner highly creditable to the members of the Committee. The subject had been maturely considered and discussed by the Highland Society on two previous occasions, on both of which the Society came to the conclusion that it was not expedient that an "Experimental Farm" should be established at the expense of the Society. The Committee appointed to report on the petition of the Wester Ross Farming

Society, in considering the question, disregarded the circumstance of the proposition having been negatived upon two former occasions, and determined to consider it upon its merits; and the result has been a confirmation of the former resolutions of the Society. In this conclusion we entirely concur with the Committee. For the reasons which influenced the Committee in taking this view of the subject, we refer to the report itself. The Committee, however, did not confine itself to the single question of an "Experimental Farm," but also went into the question of a "Model Farm," and here also we agree in their decision, so far as the Highland Society is concerned—that it would not be advisable that the Society should embark its funds in any such undertaking. Had the Committee been content to stop here, we should have had nothing further to say on the matter; but when an opinion, unfavourable to "Model Farms," by whomsoever conducted, is expressed, we cannot permit such a statement to pass unnoticed. After having observed upon the probable results which would arise from the establishment of a "Model Farm" by the Society, the report goes on to state—

"But, independently of this general objection, founded on the management of a farm by a public and fluctuating board of directors, there would be expenses attendant upon a model farm, by whomsoever conducted, which would make any profitable return more than doubtful. If the farm is to exhibit the best of every thing known in the art, whether of grain, or stock, or implements; if, also, it is to adapt itself constantly to the improvements which are made in the various departments of agriculture, by purchasing what is new, and discarding what is inferior or old-fashioned, the farm must be manifestly conducted at an expense far greater than that at which any other farm in the country is managed.

If this paragraph really describes what a "Model Farm" ought to be, we should agree in the conclusion of the Committee; but, in our humble opinion, the Committee did not entertain a correct notion of what a "Model Farm" should be, and hence the data being false, the conclusion must be unsound. A "Model Farm" should, in our opinion, be an establishment, conducted by a skilful practical agriculturist, who should adopt the best system of cultivation, should obtain the best implements, and should sow the best sorts of grain and seeds, *adapted to the soil and climate*, having *profit always in view*, and introducing no new schemes, and making no experiments which an experienced and spirited, but prudent *tenant farmer* would not venture to try. A "Model Farm," to be really valuable, should be an establishment by which the farmers of the neighbourhood might see in practical operation an improved system of management, parts or the whole of which they might adopt *legitimately*—that is, with a certainty of increased returns. If a landlord were to induce a first-rate practical farmer, residing in a highly cultivated district, to relinquish his farm, and take an occupation in an ill cultivated district, where his system of farming, from similarity of soil, climate, &c., was available, the farm of such a man might be considered a "Model Farm," for the occupiers in the neighbourhood. We are not aware of the existence of more than one

"Model Farm,"—that established by Earl Ducie, in Gloucestershire, under the superintendence of John Morton, the author of the work "On Soils," which was so highly recommended by Dr. Buckland, at the meeting of the Royal Agricultural Society of England, at Oxford. So far as regards the cultivation and management of this farm, we believe the principles upon which it is conducted to be such as we have described. But Mr. Morton has, in respect to the general improvement of the land, another and no less important object in view—namely, that of proving to landlords that they may obtain in return for the capital invested in permanent improvements, a higher rate of interest than they can elsewhere, with the additional advantage of *having for security their own estates*. There is one recommendation of the Committee, which we perused with a high degree of satisfaction, namely, "that the directors should extend to the utmost degree those rewards that may induce scientific enquirers, to bring the aid of their knowledge to the assistance of the practical agriculturist." This is a subject of the highest importance, and we trust that the directors of the Highland Society will carry out the recommendation so made to them.—*Mark Lane Express*.

AN ACCOUNT OF THE TRANSPOSITION AND ADMIXTURE OF SOILS,

AS IN THE APPLICATION OF A CLAY-DRESSING TO A LIGHT SAND, STATING THE RESULT OF ACTUAL EXPERIMENTS.

BY WILLIAM LINTON.

(From the Journal of the Royal Agricultural Society.)

PRIZE-ESSAY.

Having had several years' experience in marling, or the admixture of clay with sand, I venture to give a practical account and a detail of my method, in doing which I shall notice—

First. The description of the land clayed over.

Secondly. The kind of clay or marl used.

Thirdly. State of the land and season of the year when done.

Fourthly. Quantity laid on, the way of doing it, and the expense per acre.

Fifthly. The result.

1st. The description of land clayed over was a very light barren sand, so barren that it never had been cultivated to profit, but had proved a losing concern to all that had engaged in it, both landlord and tenant. About one-fifth part was entirely out of cultivation and grown over with ling, gorse, &c. The substratum is a white sand, varying in depth from 1 to 4 feet. The surface was of the same texture but darker in its colour, through the decomposition of vegetable matter upon it. Beneath the bed of sand lay a yellowish kind of clay, about 1 foot thick; under it a rich marl, about 18 feet deep. The land generally being very wet, my first object was to underdrain it thoroughly with tiles; unless this is first done where necessary, marling is a waste of capital.

I cut my drains about 24 inches deep and 9 yards apart.

2ndly. The kind of clay used.—This being plentiful in nearly all parts of the farm, but varying in depth from the surface, was more or less difficult to get. The first 12 inches under the sand was an inferior yellowish clay; under it a bed about 18 feet, as already stated, of rich dark-coloured marly clay, having in it a soft stone which had the appearance of lime, and also a quantity of cobble-stones. This clay and soft stone when dissolved in vinegar and water, effervesced nearly as tartaric acid and carbonate of soda do when mixed together in water: this was my test that it contained a quantity of alkali, which rendered it fit for my purpose and worthy the name of marl. The top or yellow clay dissolved without effervescing. I consider that on the proper testing and selection of the clay or marl chiefly depends the success of marling operations. All clay will do good, there is no doubt; but on the quality used must rest the amount of benefit obtained.

3rdly. The state of the land, and season of the year when done.—I have already stated that the land was first drained; in the next place it was made completely level by the plough, harrows, and in some places, the spade; after which it was ready for the marl being laid on, which was done at all times of the year. For the first two years I made naked summer fallows, and laid the clay on in July and August: but, after getting the land into a regular course of crops (*viz.*, the four-course system), I then did the work when in seeds in the same months, which I continued to do as much as possible afterwards, for the following reasons:—First—to avoid the great injury done to the land by such heavy carting when in fallow, which was visible in some places the two or three succeeding crops. Secondly—from the loss sustained in having a fallow instead of a crop of turnips: and thirdly—from the cartage being so much easier when in seeds than when in fallow.

The land which was out of cultivation was pared and burnt, with a hope of getting a crop of turnips; but in this I was disappointed. It was also drained and levelled before marling.

4thly. The quantity laid on, the way in which it was done, and the expense per acre.—The quantity laid on depended upon the quality of the land, and varied from 100 to 200 cubic yards per acre; the average was 150 yards. Where the land was very light and barren (which was mostly the case on elevated parts) a larger quantity was laid on; but where it was a better soil, a much less quantity answered the same purpose—my object being to lay just as much on as would grow wheat after seeds. To do more than this, would not only have been an injury to the land for eating turnips upon it with sheep and for the barley crop, but also a waste of money in extra expense. When sufficiently clayed to grow wheat after seeds, (a point requiring close attention,) I always found it effectually done for any other crop.

The way in which it was done.—It was necessary in the first place to fix upon the most favourable situation for the pit, keeping three objects in view. 1st. The most convenient place for carting to the plot of land intended to be marled. 2ndly. The best situation for a pond, to answer for a permanent watering-place, cutting if possible across a fence so as to water two fields, one from each mouth of the pit. 3rdly. Where the clay could be got with the least difficulty. After the place was fixed upon

the work was carried on by five diggers, a driver, four horses or beasts, and two carts (which are of the Scotch kind, with short bodies and broad wheels). The pit was dug with a gradual descent, so that three horses could draw out about a ton, which was shot out where wanted, the cart returning by the time the other was loaded; thus three horses were always ready for the loaded cart. The clay was spread by the diggers at broken times, after being exposed to the action of the air; rain, after either frosty or drouthy weather, would cause it to fall to pieces sufficiently for harrowing and ploughing in. The expense I paid for digging, filling the carts, and spreading, was from 4d. to 5d. per cubic yard (full 1 ton), varying according to the quantity of stones imbedded in the clay, as before noticed.

The total expense upon an acre having 150 yards laid upon it was as follows:—

	£	s.	d.
Digging and spreading 150 yards, at 4½d. per yard.....	2	16	3
Four horses four days, at 2s. 6d. each, 10s. per day.....	2	0	0
Driver four days, at 2s. 6d. per day....	0	10	0
Other expenses (wear and tear).....	0	3	0

Total expenses in marling one acre.... 5 9 3

In this way I marled 80 acres, but afterwards hit upon another plan in which I found a great saving to my horses, as in the wet season of the year it was heavy work for them to draw the carts out of the pits. I got a windlass made on the same principle as the one used for the draining-plough, which I fixed upon a platform 10 yards from the centre of the mouth of the pit; the platform was formed of the sand taken from above the marl, and was elevated 2 feet above the surface of the ground.

The expense per acre when the windlass was used was—

	£	s.	d.
Digging and spreading 150 yards, at 4½d. per yard.....	2	16	3
*Three horses 4 days, at 2s. 6d. each, 7s. 6d. per day.....	1	10	0
Lad to drive horse in windlass, 4 days, at 1s.	0	4	0
Driver for carts, 4 days, at 2s. 6d.	0	10	0
Wear and tear.....	0	2	0

Total expense per acre when windlass was used 5 2 3

Total expense per acre when common carts are used..... 5 9 3

Saving.... 0 7 0

The advantage is not pecuniary alone, but the heavy drag and difficulty in getting out of the pit is also avoided; and one-third less land is taken up by the pit, as it can be dug much steeper, and to any depth, whilst no difficulty arises in getting out with the loads, even with an inferior horse. The same number of diggers are required.

5thly. The result.—I have already described the land as being light, and of a very inferior kind; this the crops went to prove, which were generally overgrown with the greatest variety of annual weeds, the growth of which apparently no culture could prevent; but in no instance have they ever made their appearance after the land was

clayed over. I cannot give an account of the rotation of crops; previous to marling no regular system could be adopted. It was usual to allow the seeds to remain four or five years unploughed, for the sake of ridding the land of the weeds, after which a crop of oats was taken, which would not average more than 3½ quarters per acre. Then followed a fallow, which was sown with rye, and sometimes with turnips, but the land being generally undrained, the latter crop often proved a failure. Barley was sown after the turnips, also grass or clover seeds.

The produce in four years could not be stated at more per acre than—

	£	s.	d.
First year—turnip fallow.....	4	0	0
Second year—barley or rye....	4	0	0
Third year—seeds depastured..	2	12	0
Fourth year—oats, barley, or rye.	3	15	0

14 7 0

The same land is now cultivated to the best advantage under the four-course system or rotation of crops. All the fallows are sown with turnips, after which follow barley, seeds which are depastured, and then wheat, which finishes the course of crops. I will here give the produce of four years, after marling upon fallow, and four years after marling upon seeds:—

	£	s.	d.
First year—fallow.....	0	0	0
Second year—wheat, 29 bush., at 7s. per bush.....	10	3	0
Third year—seeds depastured.....	4	4	0
Fourth year—wheat, 24 bush., at 7s. per bush.....	8	8	0

Produce in four years when marled upon fallow..... 22 15 0

	£	s.	d.
First year—wheat, 24 bush., per acre, at 7s. per bush.....	8	8	0
Second year—fallow, turnips.....	4	15	0
Third year—oats, 52 bush., at 23s. per qr.....	7	9	6
Fourth year—seeds depastured.....	4	4	0

Produce when marled upon seeds..... 24 16 6

Balance in favour of marling upon seeds. 2 1 6

The produce after marling in four years 24 16 6

The produce before marling in four years 14 7 0

10 9 6

The balance of 2l. 1s. 6d. in favour of marling upon seeds, does not show that there is any advantage in it over that of making a naked fallow for that purpose, as more than that ought to be deducted for the cultivation of the turnip crop, which would not occur in a naked fallow. But when a naked fallow is made for the purpose of marling the land, then two wheat crops occur in four years, which, notwithstanding it here makes the produce run much higher in the four years than it otherwise would do, could not be long practised with any advantage whatever to the farmer.

The balance of 10l. 9s. 6d. in favour of marling needs no comment.

But in stating these results, I must refer to the

* One horse was used for the windlass, and the other two for taking away the loaded carts.

comparative merits of the two different kinds of clay used, not by any chemical definition, but from actual experience. The clay, whether laid upon seeds or fallow, was shot out in loads as already stated, then spread as equally as possible; but, on account of the large size of the pieces of clay, the land could neither be ploughed nor harrowed until it had been first dried, had then become wet, or frozen, and had afterwards thawed. After this it was harrowed. The best or dark-coloured clay will fall long before the top or yellow sort, which is not so easily pulverized. The first named is very productive of itself, but the other requires some stimulant to produce a crop.

If laid upon seeds the land was only ploughed once in October, and drilled in the same month with wheat. When upon fallow it was ploughed two or three times, and well mixed up with the sand, and also sown with wheat. In this way a good crop was realized without any other manures, but wherever fold-yard manure was applied, the crop was very abundant.

On parts of the farm turnips were frequently destroyed by grubs before the land was clayed over, but in no instance have they since, neither have they been destroyed by any other insect, except in 1836, when a few black caterpillars were upon them. A moiety of the Swedes are drawn off, but the whole of the white turnips are eaten upon the land with sheep. I find no manures to surpass that from the fold-yard. I tried, by way of experiment, rape-dust, bones, and fold-yard manure. The turnips sown with bones and fold-yard manure were equally good, but those with rape-dust were decidedly the worst.

The land is never so productive the first two years, or until the clay has got well pulverized and mixed with the sand, as it is afterwards, and will not grow a good crop or a fine sample of barley for five or six years after the clay is laid on; I have therefore sown oats instead.

It is thought by some people that the clay will waste away, and require to be renewed in the course of fifty years, or perhaps sooner. On this head I have no apprehensions, but am confident that, if after the lapse of twenty or thirty years there were not a particle of clay remaining, the land will have acquired sufficient quality and strength in itself, to produce a crop of any kind of grain.

I am led to this conclusion from my own observations, and think it one which may readily be come to by others on referring to the statement made of the produce, which is considerably within what I might have stated, had I selected the leading or best crops. This increase in the produce (which is double to what it was) returns in part to the land under the four-course system.

It may not be necessary for me to add more, as enough already has been adduced to increase exertion in making such improvements upon light sands. I have to regret that I did not commence the above improvements with greater determination, and to a greater extent from the first; but being inexperienced in the business, and having but little information on the subject, I was desirous of finding out the best way of doing the work and of trying the result before I went to any extent. If people would improve the land they have, particularly light land, by draining, marling, &c., they would realise a far greater return for the outlay than by purchasing more. It is a great national loss, and much to be regretted, that so

much land, capable of being made really good, should lie waste, having a good drainage, and a plentiful supply of excellent clay underneath, which is generally the case when there is a white sandy surface.

Having the sanction of my landlord, who is anxious to see this system spread, I may be excused for stating that the whole of the above improvements have been carried on at his expense, for which I pay a rent which yields him a clear 4 per cent. on his purchase and other monies expended on a farm, originally of the most barren quality.

Inferior land, and especially light sands, ought not to remain untillied; but for the common benefit of the owner, the occupier, and the consumer of the produce, they should be brought into cultivation.

Sheriff Hutton, near York.

THE GEOLOGICAL HISTORY OF THE HORSE.

BY MR. W. C. KARKEEK, V.S., TRURO.

(From the Veterinarian.)

To trace the history of remote events, and to investigate the origin of our domesticated animals, has given occupation to the highest talents; and in this interesting inquiry, mouldering records, decaying monuments, fabulous legends, and the sibylline leaves of tradition, have yielded their respective tributes. But still the details, even of probable history, carry us back but a little way into the dark recesses of antiquity, and we soon reach the epoch when truth and fable are inseparably blended.

The natural historian and natural theologian have hitherto exclusively confined their attention to one volume of Nature's history—that which relates to the present order of things; and man is regarded by them as the undisputed sovereign of the world around him—the cattle on a thousand hills are supposed to be at his disposal—the mighty deep yields its treasures to his skill—the savage denizens of the mountain and the forest are tributary to his power, and the *magna charta* for these veiled rights they find in the inspired page. From the command to subdue the earth, and to exercise dominion over its tenants, they draw the inference, that their only purpose was to increase his luxuries, and that they were created for no other use than that they might be subservient to his destructive propensities.

These views of the uses of the animal world, so long universally received, have been of late singularly modified by the light of modern science; for within the bowels of the earth the geologist has discovered a series of engravings, more or less injured and imperfect, yet all executed by the same hand, and bearing the manifest impress of the same mighty mind, which distinctly inform us of the characters and habits of races, some of them extinct and some still existing, which occupied its surface for many thousands of years ere man ever placed his foot on this wondrous soil, or contended with them for dominion.

To trace, then, the ancient history of the horse and his contemporary congeners, we must first take a slight glance at those engravings which have been discovered in the different strata of the earth, and

which, like the brain of Touchstone, "is crammed with observation, the which it vents in mangled forms."

Without embarrassing ourselves with the history of the geological epochs, we will briefly advert to a few facts,—that certain families of organic remains are found pervading strata of every age, under nearly the same generic form which they present amongst existing organizations. Again, that other families, both of animals and vegetables, are limited to particular formations, there being certain points where entire groups ceased to exist, and were replaced by others of a different character. It is also a fact well to be acquainted with, that animals and vegetables of the lower classes prevailed chiefly at the commencement of organic life, and that the more perfect animals became more gradually abundant as the world grew older.

If we pass in succession from the ancient to the modern epoch—from the regions of sterility and desolation to that in which animal and vegetable life were profusely developed, we find that the first evidence of organic existence was, setting aside the infusoria, a few *fuci*, *mollusca*, and *polyparia*: these were followed by a large development of the same order. In the succeeding period, reptiles and insects appear, with saurid fishes, and an immense development of vegetable life, particularly the cryptogamia class, such as mosses, ferns, &c. Large reptiles did not then prevail to an extraordinary degree at this epoch, in what are now the temperate regions of southern England—the weald of Sussex and Dorsetshire for example; but a very long time afterwards these spots were peopled by monsters of an extraordinary character, which stalked amid marshy forests of a luxuriant tropical vegetation, or floated on the genial waters. This state continued for a long period of time, when another change took place, and the country and its inhabitants were swept away. An ocean had usurped its place; and then, after another long period of time, and the dry land had again appeared, it became covered with groves of forests, and herds of deer, and of oxen of enormous size. Groups of elephants, mastodons, horses, and other herbivorous animals, occupied its plains; its rivers and marshes were crowded with the hippopotamus, the tapir, and rhinoceros; and its forests afforded shelter to the hyæna, the bear, and the tiger.

This is the period when the horse first appeared on the stage of life, being the one subsequent to the last grand catastrophe, as it is frequently but incorrectly called, by which the earth was said to be overwhelmed,

"Ere Adam was, or Eve the apple ate."

We must now confine ourselves more closely to this particular period, being the one immediately antecedent to the present order of things.

In almost every part of the globe, beneath the present or modern alluvial soil (which is a loose strata constantly deposited by streams and rivers), extensive beds of gravel, clay, and loam, are found spread over the plains, or in the flanks of the mountain chain, or in the crest of ranges of low elevation: and in these accumulations of water-worn materials—termed by Dr. Buckland, *diluvium*, and by Cuvier, *alluvium*—are immense quantities of the bones of large mammalia. These remains belong principally to the mastodon and the elephant, to various species of hippopotamus and rhinoceros, to the horse, ox, deer, and many extinct genera; while in caverns and fissures of rocks, filled with calcareous breccia, the skeletons of tigers, boars, gigantic hyænas, and other carnivorous animals are imbedded. They have

been found alike in the tropical plains of India, and in the frozen regions of Siberia, while there is no considerable district of Great Britain in which some traces of them do not occur. These remains are not always found together. Cuvier, whose authority I quote, says, that the remains of the horse have been found with the mastodon (an extinct animal allied to the elephant) in America; with the mastodon in Little Tartary, Siberia, Italy, and France; with the rhinoceros in France, Italy, and Germany; and with the rhinoceros, hippopotamus, hyæna, tiger, elephant, and a gigantic species of cervus, in Great Britain. Capt. W. S. Webb discovered the remains of the horse in a fossil state, together with those of the deer and bear, in Diluvium, and on the Himalayan mountains, at an elevation of 16,000 feet.

In South America the bones of horses of a large size have been discovered by Mr. Charles Darwin, naturalist to the *Beagle*, in company with the remains of the megatherium, of immense bulk, a huge mastodon, parts of rodents, and a llama fully as large as the camel.

"With regard to North America," Cuvier says, "the *elephas primigenius* has left thousands of its carcasses from Spain to the shores of Siberia." The fossil ox, in a like manner, he writes, is buried "dans toute la partie boréale des deux continents, puisque on en a d'Allemagne, d'Italie, de Prussie, de la Siberia occidentale et orientale, et de l'Amerique." "I may here add," says Darwin, "that horses' bones, mingled with those of the mastodon, have several times been transmitted for sale from North America to England; but it has always been imagined, from the simple fact of their being horses' bones, that they had been accidentally mingled with the fossils. Among the remains brought home by Captain Beechey from the west coast of the same continent, in the frozen region of 66° north, Dr. Buckland has described the astragalus, metacarpus, and metatarsus of the horse, which were associated with the remains of the *elephas primigenius*, and of the fossil ox. In Mr. Saull's geological museum, Aldergate Street, London, there are three coffin bones, one os sacrum, and one cannon bone, from Big Bone Lick, Kentucky. In the same collection are one cervical vertebra, Herne Bay, Kent; several metatarsal, ditto, one dentate, ditto, and portions of two ribs, from Plumstead, Kent; several teeth from Banwell Cave, Somersetshire; and two teeth, and several astragalus, from Swansea, South Wales—all of the horse. With respect to Great Britain, as I before stated, there is no considerable district in which some traces of the fossil horse do not occur, in company with either those of the elephant, the rhinoceros, hippopotamus, tiger, ox, deer, or hyæna. At Oreston, near Plymouth, an immense number of bones of the rhinoceros and horse were found; and in a cave at Paviland, in Glamorganshire, those of the elephant, rhinoceros, horse, hog, bear, and hyæna, were found embedded together. In the celebrated Kirkdale Cave, Yorkshire, the contents of which have been so graphically described by Dr. Buckland, were discovered fossil bones of the tiger, bear, wolf, fox, weasel, elephant, rhinoceros, hippopotamus, horse, ox, and deer, and an immense number of the bones of the hyæna.

In the earlier ages, some of these colossal bones were supposed to belong to gigantic races of mankind, and hence the traditions of giants, possessed by every country in Europe; but it is an authenticated fact, acknowledged by all geologists, that no traces of man or his works have ever been discovered in any of the diluvial strata. Leibnitz, in his "*Protogæa*," mentions the fossil bones of a unicorn,

discovered at Quedlimbourg, in 1663. They were found in a calcareous and gypseous hill, and after being collected, a sketch was made of the animal, such as it was pretended to be: but a single glance at the sketch is sufficient to shew that it was done by very ignorant hands, and taken after parts most incongruously joined. The bones of the horse seemed to have formed the principal part of the conformation, with a considerable portion of the muzzle, a piece of the humerus, a lower tooth, and an ungual phalanx of the rhinoceros. It was supposed by Cuvier, but now denied by most of our eminent geologists, that the diluvium strata on which the animals we have described have been found embedded, was the consequence of a sudden inundation of water. It will be necessary briefly to allude to a few important facts connected with this subject, that are acknowledged by all parties:—First, that after all the strata which compose the crust of our globe had been formed, a great portion of the earth has been covered with water. Secondly, that the period or epoch which relates to this history was one of immense time, and that the whole surface was densely peopled by various orders of living creatures, some of them, as we have seen, not distinguishable from existing species. Thirdly, that great and considerable changes must have taken place since that epoch in the climate of different parts of the world; and confining our attention to our own island for an example of this, we find that there then flourished on its surface the luxurious vegetation of a tropical clime. In the course of time, however, the whole scene vanished, with various orders of living creatures then ranging the plain or swimming the lake, such as the tiger, the elephant, the rhinoceros, and the hippopotamus; while their contemporary congeners, as the horse, deer, ox, &c. were left behind. Shortly after this man appears on its surface.

When we carry our minds back to this subterituary period—which, geologically speaking, is so recent that it may be considered as only just gone by—we receive the accounts with surprise and almost incredulity. It must be admitted, that they at first seem much more like the dreams of fiction and romance than the sober results of calm and deliberate investigation; but to those who will examine the evidence of facts, upon which the conclusions rest, there can remain no more reasonable doubt of the truth of what I have been relating than is felt by the antiquary who, finding the catacombs of Egypt stored with the mummies of men, apes, and crocodiles, concludes them to be the remains of mammals and reptiles that have formed part of an ancient population on the banks of the Nile.

Now, if it was a sudden catastrophe or deluge which destroyed the hippopotamus, the tiger, and the elephant, how did the ox, deer, and horse continue to escape the flood of waters? Why this partial selection of its victims among the ancient inhabitants of our country? But these changes on our island are not more wonderful than the mutations that have occurred in other parts of the world. It is almost impossible to reflect, without the deepest astonishment, on the changes that have taken place on the continent of South America. Formerly it must have swarmed with great monsters, like the southern parts of Africa; but we now find only the tapir, guanaco, armadillo, and capybara—mere pigmies compared to the antecedent races. The greatest number, if not all, lived at the epoch we have been describing, and many of them were contemporaries of the existing mollusca.

"In the Pampas," says Darwin, "the great sepulchre of such remains, there are no signs of vio-

lence, but, on the contrary, of the most quiet and scarcely-sensible changes." "What shall we say," he continues, "of the death of the now fossil horse? Did those plains fail in pasture, which afterwards were overrun by thousands and tens of thousands of the successors of the fresh stock introduced with the Spanish colonist?" "One is tempted," he continues, "to believe in such simple relations as variations of climate and food, or introduction of enemies, or the increased number of other species, as the cause of the succession of races. But it may be asked, whether it is probable that any such cause could have been in action during the same epoch over the whole northern hemisphere, so as to destroy the *elephas primigenius* on the shores of Spain, on the plains of Siberia, and in Northern America; and in like manner, the *beurus*, over a range of scarcely less extent? Did such changes put a period to the life of the *mastodon eximius* and of the horse, both in Europe and on the eastern slope of the Cordillera in southern America? If they did, they must have been changes common to the whole world; such as a gradual refrigeration, whether from modification of physical geography, or from central cooling. But in this assumption, we have to struggle with the difficulty that these supposed changes, although scarcely sufficient to affect molluscous animals either in Europe or South America, yet destroyed many quadrupeds in regions now characterised by frigid, temperate, and warm climates." "The *elephas primigenius* is thus circumstanced, having been found in Yorkshire; and now associated (says Lyell) with recent shells in Siberia and in the warm regions of lat. 31°, in North America.

The law of the succession of types, although subject to some remarkable exceptions, must possess the highest interest to every philosophical naturalist. Some of the animals we have been describing appear to have been created with peculiar kinds of organization, suited to particular eras; and it does not seem extraordinary that their extinction, more than their creation, should exclusively depend on the nature (altered by physical changes) of their country. But as to the horse, for instance, his constitution appears suited to every climate; and we cannot account for their species being destroyed throughout the whole of the two continents of America, unless the change was much more considerable than we imagine it to have been.

It would seem from what has been stated, that certain races of living beings and plants, suitable to peculiar conditions of the earth, were created, and when those states became no longer favourable for the continuance of such types or organization, according to the natural laws by which the conditions of their races were determined, they disappeared, and were succeeded by new forms.

The reader will observe in the geological mutations we have briefly alluded to, that one simple inundation, one general catastrophe, is not sufficient to account for the phenomena we have described, since many alternate changes of heat and cold must have taken place to have produced these alterations on the earth's surface.

Mr. W. D. Saull, F.G.S., is the only writer who has accounted for those changes in a satisfactory manner. This gentleman confines himself principally to the strata of England, in his illustrations; but it will be seen, that they easily solve all the difficulties that Darwin alludes to respecting these changes in the American continents.

(To be continued.)

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At a Monthly Council, held on Wednesday, Jan. 6, 1886, present—Thos. Raymond Barker, Esq. (in the chair), Col. Challoner, James Dean, Esq., William Shaw, Esq., and William Youatt, Esq., the following new members were elected:—

Ates, Rev. William, Willey, near Brosely, Shropshire.
Laycott, Thomas, Rudge, near Wolverhampton, Staffordshire.

Brewster, Joseph, Brewood, Staffordshire
Bate, L., Badger, near Shiffnall, Shropshire
Smith, John, Roughton, near Wolverhampton
Williams, J. Buckley, Glan Hafrew, Montgomeryshire
Poundley, J. W., Brook Cottage, Newtown, Montgomeryshire

Lloyd, Charles, Court Calmon, Newtown, Montgomeryshire
Nicholls, L., Bryncamisha, Newtown, Montgomeryshire

Drew, Rev. John, Tregunnon, Newtown, Montgomeryshire

Pinkey, Joseph Rowley, Much Wenlock, Salop
tersee, Dennett, Barpham, near Arundel

Field, William, Rumboldswythe, near Chichester
Folkestone, Viscount, Longford Castle, Salisbury

Knighton, Sir Hill, Bart., Blendworth House, Hordean, Sussex

Brundy, James, Heaves Lodge, near Kendal
Pattison, F. A., Coggeshall, Essex

Cattle, W., Burleigh, Stamford
Mussen, James, Colsterworth, Lincolnshire

Bullimore, W., Witham, near Colsterworth, Lincolnshire

Salisbury, William, Dordon, near Atherstone
Farmer, Thomas, Stonidolph, Fezeley, Staffordshire

Hibson, Thomas, Middleton, Fazeley, Staffordshire
Farmer, Richard, Sheldon, Birmingham

Wedge, Charles, Bickenhill, Coleshill, Warwickshire
Andrews, Onslow, Braborne, Ashford, Kent

Hildred, William, March, Cambridgeshire
Langton, Robert Martin, Thorney Abbey, Peterborough

Price, Charles, 2, Great Queen-street, St. James's Park

Crustam, John, Higham Gobean, Silsoe, Bedfordshire

Pain, Joseph, Felmersham, Bedford
Neale, Charles, Mansfield, Woodhouse, Nottinghamshire

Seedham, William, Brixton Villa, Surrey
Minnett, Joshua Robert, Annagh, Neagh, Ireland

Parkinson, John Law, 26, Cloudeley terrace, Islington
Bethell, Richard, Guildford, Surrey

Bullen, John, Biggin Grange, Oundle
Harley, Thomas, near Crowland, Lincolnshire

Cambridge, William, sen., South Runceton, Norfolk
Munn, William Augustus, Gore Hill, Sittingbourne, Kent

Combs, John, Great Barrington, Burford, Oxon.
Lisburne, the Earl of, Cross Wood, Aberystwith

Tempest, Charles, Broughton Hall, Skipton, Yorkshire
Barnard, John, Causfield Hall, Dunmow, Essex

Holland, William, Rodbaston Hall, Penkridge, Staffordshire

Keeling, Charles, Congreve, Penkridge, Staffordshire
Harding, William, Acton, near Stafford

Wyley, James, Longdon, near Lichfield
Stubbs, James, Brocton, near Stafford

Smart, Charles John, Rainham, Sittingbourne, Kent
Cull, Thomas, Farleigh, Maidstone, Kent

Newstead, Thomas, jun., Dunham, Newton, Nottinghamshire

Leete, Henry, Thrapstone, Northamptonshire
Burnham, George, Wellingborough, Northamptonshire

Wright, J. M., Grendon, Northamptonshire
Perkins, Abraham, Arnsby, Leicestershire

Swinford, Stephen, Sarr, Margate, Kent
Powlett, William, Barnack, Stamford, Lincolnshire

Cartwright, Moses, Stanton, Burton-on-Trent

Lock, Samuel, Barton, Stoke Ferry, Norfolk
Salter, W. P., Whinbergh, East Dereham, Norfolk
Cheetham, Samuel, Hambleton, near Oakham, Rutland

Skelton, William, Long Suttan, Wisbech, Cambridge-shire

Gardener, William, Ewell Court, Epsom, Surrey
Gobbit, John, Iken Hall, Saxmundham

Simons, Charles, Fishtoft, Lincolnshire
Nodder, Rev. Joseph, Ashover Rectory, Chesterfield, Derbyshire

Chew, L., Clipston, Market Harborough
Crouch, James, Cainhoe, Silsoe, Bedfordshire

Booth, John, Kelston Grange, Louth, Lincolnshire
Everitt, Isaac, Capel, Suffolk

Church, Rev. Wm., Woolsthorpe, Grantham
Gilbert, Mrs. Davies, East Bourne, Sussex

Dickinson, John, 22, Bedford-row, and Abbot's-hill, Watford, Hertford

Mahir, J. H., Lynn, Norfolk
Day, John, Burghill, Chiddingfold, Sussex.

Colonel Challoner, chairman of the Finance Committee, presented the report of the meeting held that day, announcing to the council the final settlement of the Cambridge accounts, and recommending a renewed expression of the thanks of the society to be presented to Messrs. Mortlock, bankers, of Cambridge, for their kind services; and a resolution to be transmitted to Mr. Henry Manning, the contractor for the Great Dining Hall and Cattle Yard, Cambridge, expressive of their entire satisfaction of the strict fidelity with which he appears in every respect to have fulfilled his engagements to the society.

EPIDEMIC.

Communications on the subject of the epidemic among cattle were received from his grace the Duke of Rutland, from Leicester; Sir John Ogilby, from Scotland (near Dundee); Mr. Purchas, from Monmouthshire; and Mr. Joseph Cooper, from Hampshire.

The Duke of Rutland informed the society that in Leicestershire, in the neighbourhood of Belvoir, the disease still continued its ravages, and that the whole of his shearing sheep had, within the previous ten days, been strongly affected with it, and his Grace communicated the striking fact, that the only animals on his farm which had escaped the infection were his dairy cows, and they were surrounded by the other stock, although not in contact with them; and the instance in the case of the stock of Mr. Sanders, of Thurmaston, in the same county, in the neighbourhood of Leicester, the whole of which had been similarly affected, excepting the dairy cows. They were taken, morning and evening, to his house to be milked, and, in so doing, had to pass a hundred yards along a turnpike road. They unfortunately passed one day soon after a diseased drove had gone along the road, and the whole of them became at once subject to the disease. Sir John Ogilby's communications stated that the disorder had broken out with some violence in the neighbourhood of Dundee; but that the distribution of the society's circular had been found most beneficial to the farmers of that part of Scotland. Mr. Purchas informed the council that the disease had reached Monmouthshire, and that a member of the society had, a few days previously, lost four cart-horses, and six more were then ill; adding that there was a great demand for copies of the society's circular. Mr. Cooper's letter was an endeavour to explain the cause of the malady, as existing in the deleterious gases evolved by the food taken by the animals, as in the case of mildewed turnips, proposing that a rowel should be inserted nearest the chest to effect a discharge, and thus relieve the system of the diseased condition induced by the noxious food. It was resolved that the queries on the subject of the epidemic, to be transmitted to each member of the society, should be finally decided and ordered for press at the next meeting of the council. Mr. Dugdale, M.P., transmitted to the society the result of his trials on the application of saltpetre and nitrate of soda on two fields on his estate in Warwickshire—one, a light,

gravely soil, and the other a stiff clay—as well as on some grass land. In every case a decided superiority attended the use of nitrate of soda, in the increase of wheat and abundant crop of hay. Mr. John Parkinson addressed to the society a detailed communication from Nottinghamshire, on the crop of Swede turnips grown on his farm, and for which he received the premium and sweepstakes of the Ollerton Society.

Mr. Newman, of Court Farm, Middlesex, presented for the society's museum a model of the plan pursued, and of the implements employed, in the system of sub-soil draining, adopted extensively and with such entire success on his farm near Uxbridge, and invented by Mr. Lambert, of Burleigh Hill, near Reading. Mr. Newman's communication stated that this mode of drainage was most efficient and economical for strong clay lands, and had stood the test of forty years' experience.

Mr. Cuthbert Johnson and Mr. Alderman jointly presented for the museum an original hoe of the celebrated Jethro Tull, found in a well on Prosperous Farm, in Berkshire, on which he lived.

Communications are also received from the Imperial Society of Agriculture of Moscow, and Sir Edward Stracey.

The following donations for the library were laid on the table:—Transactions of the Highland Society of Scotland; Report of the Proceedings of the Imperial Society of Moscow; Improved System of Agriculture, and a Treatise on Practical and Chemical Agriculture, by the author, Mr. Joseph Russell, of Leamington; an Account of the Derby Arboretum, by Mr. Loudon; the Farmers' Magazine, by Mr. Shaw; the Veterinarian, by Mr. Youatt; the Telford Premiums, by the Institution of Civil Engineers; the Mark-lane Express, Bell's Weekly Messenger, Farmers' Journal, Magnet, Hampshire Independent, Cambridge Advertiser, and Hartford American Daily Courant—from the respective editors and proprietors.

At a council held on Wednesday, Jan. 20, present, Thomas Raymond Barker, Esq., in the chair, Earl of Euston, G. K. Barker, Esq., James Dean, Esq., Humphrey Gibbs, Esq., Professor Sewell, and Wm. Youatt, Esq.

Caledon George Du Pre, Esq., M.P., of Wilton-park, was elected a Governor, and the following gentlemen Members of the Society:—

Charles Emery, Esq., Burcot, Wellington, Shropshire
Richard Earl, Knowsley, near Liverpool
William Webster, Upton, Cheshire, near Liverpool
Z. Sillar, Zainford, near Liverpool
Thomas Slatter, Knowsley, near Liverpool
R. Ledger, Hale, near Liverpool
Michael Ashcroft, Bank Hall, near Liverpool
James Cannell, Castle-street, near Liverpool
John Ronalds, Brentford, Middlesex
Joseph Badcock, Pytton, near Watlington
William Badcock, Watlington, Oxfordshire
Matthew Sherborne, Heston, Hounslow
John Whiting, Heston, Hounslow
Joseph Foster, Newton Lodge, Wisbeach, Cambridge-shire
Cheesman Williamson, Wisbeach St. Mary's, near Wisbeach
R. W. Peel, Long Sutton, Lincolnshire
William Pennington Gorringe, Shoreham, Sussex
William Beard, Tormarton, Cross-hands, Gloucestershire
Lieut.-Colonel Williamson, Commandant of the Royal Military Asylum, Chelsea
James Cole Thorpe, Thoresway Vale, Caistor, Lincolnshire
Rev. Thomas Harman, Barden, near Tonbridge
Joseph Fountain, Rickmansworth, Hertfordshire
Joseph Jessop, Grove Farm, Chiswick, Middlesex
Charles Ely, Heathfield Farm, Hounslow
R. M. Layton, Thornley Abbey, Peterborough
Henry Allington Pye, Louth, Lincolnshire
William Abraham, Barneby, Brigg, Lincolnshire

L. Hobson, Kettleby Thorpe, Brigg
Wm. Wiggins, Little Bridge-street, Blackfriars, and Herne Bay

James Spain, Underdown Farm, Herne, Kent
William Jacobs, Chale Abbey, Newport, Isle of Wight

James Bertram, Gatcombe, Newport, Isle of Wight
Wryley Birch, Wretham-park, Thetford, Norfolk
William Clutton, Edwinstone, Ollerton, Nottinghamshire

George Thomas Bateson, Sutton, St. Helen's, Lancashire.

LIVERPOOL MEETING.

A letter was read from the President of the Society, announcing to the Council the communication he had received from the corporation of Liverpool, on the subject of the selection of suitable localities, for the accommodation of the meeting of the society, to be held in that town in July next, and notice was given that this communication would be taken into consideration at the next Council on the following Wednesday.

EPIDEMIC QUERIES.

The Council then proceeded to discuss and decide upon the queries to be issued to the members for information respecting the epidemic, and having examined them in succession, directed their being put in type, and laid before the Veterinary Committee, for their report to the committee next week. Dr. Neill Malcolm, Esq., a governor of the society, residing in Argyshire, applied for a supply of copies of the society's circular on the epidemic, stating that although the disease had not reached that county, it had proceeded within a few miles of its borders. Mr. George Kilby, of Queensborough, in Leicestershire, addressed to the council a statement of a singular and sudden loss he had experienced among some of his flock of sheep, which had been feeding on Swedish turnips. Professor Sewell undertook, at the request of the Council, to present a report to them on this communication.

NEW CATTLE INFIRMARY.

Professor Sewell attended the Council for the purpose of announcing to the members the final completion of his arrangements for a Cattle Infirmary at Islington, to be established at Professor Sewell's own risk and expense, in premises adjoining the large well-known dairy of Mr. Flight (late Mr. Laycock), at that northern entrance to the metropolis; Mr. Flight also handsomely throwing open his own establishment for the practice and experience of the pupils attending the infirmary; Mr. Staveland, an experienced veterinary surgeon, who had for four years been devoting his attention to the diseases of cattle, having been appointed the resident superintendent of the establishment; no charges being made for medicines or operations, and a scale of prices adopted for the keep of the animals, so moderate as not to exceed their expenses at home; the institution not being limited to any individual, but open to the public at large, and especially to the members of the Royal Agricultural Society of England.

The Council returned their thanks to Professor Sewell for this information, and referred to the Veterinary Committee, on Wednesday next, the document the Professor expressed his intention of transmitting to the Society, explanatory of the details and regulations of the infirmary, with a request that the Veterinary Committee would report upon the proposed plan to the Council to be held on that day.

EXPERIMENTAL FARMS.

Sir Charles Gordon, Bart., Secretary of the Highland Society of Scotland presented a copy of the report just made by that body on the subject of the proposal made to them of the establishment of an Experimental Farm in Scotland. The report was unfavourable to the society's embarking in an undertaking of this nature, which requires, on the estimate of Sir John Sinclair, and Mr. Stephens (the Editor of the "Quarterly Journal of Agriculture of Scotland"), no less a sum than 5,000*l.* a year for the due carrying out such an establishment, would amount to a speculation too hazardous for the

funds of any private society of subscribers, even were the opinion unanimous among its members for the utility of such proceedings, instead of being in favour, as they are considered to be, of more practical and extended operations under the form of Model Experiments carried out on the same uniform plan, by various members, under varied localities, soils, and aspects. The report contains the following opinion on this point:—

"The committee cannot believe, for a moment, that this Society can so advantageously employ the funds at its command, in endeavouring to set an example of good farming to others, or in making experiments with a view to discovery and improvement, as by encouraging the agriculturists of the country to afford these examples, and make these experiments. This has been the course which the society has pursued ever since its institution; and no sufficient reason has yet been assigned, to show that it would be wise to abandon a course thus sanctioned by experience."

FOOD FOR LABOURERS.

Communications on the subject of the prize offered by the society, for preparing the most economical, and, at the same time, the most substantial and nutritious food for labourers, were received from Mr. Commissioner Mott, (from Manchester), from Mr. John P. Smith, of Harbledown, near Canterbury, and from Mr. Henry Goodes, of Chandos-mews, London. Sir John Robinson, secretary of the Royal Society of Edinburgh, communicated the thanks of that society, for the copy of the journal presented to them, with an offer of the set of the valuable transactions of that distinguished and learned body. Communications were also received from Mr. Chawner, secretary of the Lichfield Society, and Mr. Green, of Court Heary, South Wales; Mr. Ramsey, of Endsleigh-street, Tavistock-square, presented to the library the two quarto volumes (bound of "Dickson's Agriculture;" and Mr. Lance announced his intention of transmitting, for the museum, a collection of agricultural soils, arranged geologically.

The Council then adjourned to Wednesday next, the 27th instant.

ON THE PREVAILING EPIDEMIC AMONGST CATTLE, SHEEP, &c.

SIR,—At a time when the agricultural community are suffering so much from the ravages committed on their stock by this troublesome pest, I have considered it a public duty to trouble you with a few observations relative to its history in this locality, its nature, and treatment; as in too many districts throughout the kingdom the farmer has not the services of a veterinary surgeon at his command, and I am only sorry my having professional engagements for this last three months have prevented me from doing it sooner.

This disease is one *sui generis*, and as far as my reading and observation goes, has never prevailed in this kingdom before; therefore, to style it the murrain, or blain, is highly incorrect, and carries very erroneous ideas along with it, both as to its nature and treatment. It has been asserted that our continental neighbours have long been conversant with the disease, and consequently that it must have been imported into this country through the medium of stock purchased abroad. I very much question the correctness of this view, for, was it the fact, it must have naturally found its way amongst us long ago.

I have a vague idea that it was first perceived in the county of Norfolk; and it would be conferring information of great value, if some of my professional brethren, or some of the eminent and talented agriculturists which that county boasts of, would, through the medium of your valuable journal, afford

us correct data relative to this point; it would be conferring a great boon upon my friend Mr. Youatt, who has been very judiciously selected by the English Agricultural Society to concentrate and mould into a proper form, everything worthy of the history, nature, and treatment of this epidemic; in his able hands we may rest assured full justice will be done the subject.

When we reflect upon the series of unprecedented wet seasons we have experienced up to the spring of 1840, the consequent badness of fodder and grain, the saturated state of the earth with moisture, and the consequent decomposition of vegetable matter exhaling its poisonous miasma into the circumambient air—when we also take into consideration the extreme fluctuations of barometrical pressure, as well as the sudden transition of heat to cold, and *vice versa*, through the same period, all developing how very powerfully and extensively that mighty and irresistible disintegrating agent, electricity, extends her sway over all the hidden and secret operations of nature in the great laboratory of our wise and beneficent Creator—we cannot feel surprised that disease and death, in every varied form, should be evolved in the poor fragile frames of the animal creation.

It is of a highly contagious nature, so much so, that it was no uncommon occurrence to witness a herd of from thirty to sixty head of cattle falling prostrate before its baneful influence in the short space of a fortnight. Its infectious properties extend to all the cloven footed and ruminating tribe, but not to the human subject, nor the horse and dog. On one occasion a poor man's cow came to my establishment labouring under the disease, and was very inadvertently put into my cowhouse to have its feet properly examined and pared out; although my own cow was out in the field at the time, and only tied up at night, yet the disease developed itself in four or five days by tenderness in her feet, followed by the affection of the mouth, and accompanied by the general febrile symptoms.

A very erroneous idea has gone abroad that the pigs have taken the disease from partaking of the milk of the infected cows, but they have simply become affected upon the same principle as sheep, by having been allowed to come in contact with them, or to follow after them in the pastures or straw-yards where they have been turned out. Pigs and calves, as a matter of experiment, have been fed with the milk of infected animals, but kept out of the sphere of the contagion, and have not been the least affected. My own family, including a child twelve months old, partook of the milk and cream of my own infected animal (being old, milked, and near calving, we gathered no butter) without experiencing any injurious effect. The loss, therefore, to the kingdom in butter and cheese by the milk having been unnecessarily sacrificed, has been immense in amount; it is only where particular cows' elders, are labouring under an attack of inflammation, or what is called gargeted, that the milk is required to be flung away.

Wherever this disease has assumed its epidemic form (as in our district) like the cholera, it appears uninfluenced in its freaks by either weather, locality, soil, pasture, or previous feeding—affecting the poor as well as the well-conditioned animal, the old as well as the young, without distinction; but I consider those cows which were the best milkers, and in full milking at the time of attack, as experiencing it more severely than others. It made its first appearance in the northern parts of Staffordshire, near Uttoxeter, at a few insulated farms during the spring of last year, in consequence of some dis-

eased cattle, purchased at Uttoxeter fair, and introduced into their respective herds, to which localities it was confined; nor was it till last autumn that it assumed its epidemic form amongst us, when it involved in its attacks both sheep and pigs; at the same time an epidemic fever, of a virulent and highly infectious nature, broke out amongst the horses of the district, seldom sparing a single horse in any establishment, however numerous, from its attack. The same epidemic amongst horses traversed the kingdom in 1825-26, and then passed over into France, where it swept off some of the best horses in the king of France's stud, and in fact committed sad ravages everywhere; but at that time there was no particular epidemic amongst cattle.—It had no connection with other diseases, and where the animals passed through it moderately, and were properly treated, their condition was not much affected, but they seemed to grow much faster and better afterwards from their course of medicine. In those instances where the feet suffered much, the condition was rapidly lost, and long in being recovered again. In one instance which came under our eye, the animal had the disease twice over, but we considered it an exception to a general law in nature, that peculiar contagious fevers cannot affect the same system twice over; however, it requires a more extended series of observations than I can furnish to set this point right.

There are many strong facts which fully bear out the opinion, that healthy animals traversing the roads already tainted by infected animals having travelled along them, have taken the disease, on the same principle as a sheep-walk infected with the foot-rot shall communicate the disease to a healthy flock turned out upon the same beat. This points out how cautious noblemen and gentlemen possessing deer in their parks should be in not allowing infected herds of cattle or flocks of sheep to pass along them. I consider, too, that it is capable of being conveyed by parties in attendance on diseased stock to healthy herds,

SYMPTOMS.—The first symptoms which perceptibly show themselves, were generally lameness in one or more of the feet, accompanied with much heat around the hoof, fetlock, and coronet, with a fullness and swelling often of one or more of the legs; this was immediately followed by a flow of saliva from the mouth, accompanied with a champing motion of the jaw. On examination, the mouth and tongue were full of ulcers, particularly under the pad of the upper jaw, the ulcers extending over the top of the nose; if on examining the mouth, you took hold of the tongue, it was no unusual occurrence to find the cuticle covering it, raised up into a white blister, and the whole of it stripped off in your hands, leaving the tongue in appearance like one that has been boiled and the skin peeled off. In some instances the affection of the mouth, and consequent flow of saliva, would precede the affection of the feet, but not as a general rule. The cow became dull and off its feed, looking anxious and sunk in the eye, the secretion of milk diminished, the ear and horns were sometimes hot, at others cold; the bowels constipated, the fecal discharge looking on its outer part dark and glistening, and as if half-baked, showing the hot and inflammatory state of the alimentary canal; the pulse ranged from 50 to 70. In two or three days after the lameness occurred, an ichorous discharge took place betwixt the claws, at the back part of the heels, and in front of the hoofs, betwixt hair and hoof, the ulceration extending often very far under the sole of the foot: those cows did best where the discharge came on early but

moderately. In some there was such great pain and tenderness of the feet, that the beast could not stand up, accompanied with much sympathetic fever, but no discharge; in these cases matter became formed under the bottom or sole of the foot, requiring very free paring to set it at liberty; in others the ulcerative process and discharge would occur extensively and deeply under the horny covering, so that the hoofs would come off, if the diseased action was not corrected by free paring and proper dressings; here the fever also ran very high, accompanied with very rapid emaciation of the animal. In some instances the mammary glands were attacked with violent inflammation, which terminated in mortification; at others, the connecting cellular membrane of a limb would be the seat of inflammation, which would either end in mortification or extensive formations of matter or pus, amongst the interstices of the muscles; fortunately these extreme cases were rare, and it was evident the disease, as it prevails amongst us, had assumed a much milder type than during its early career. The disease consists in a highly contagious inflammatory fever, possessing an erysipelatous type, consequently bearing bleeding ill, affecting particularly the mucous and secreting tissues. In its regular form it runs its course in a fortnight, the animal becoming convalescent, and fit to turn out gradually in the day-time, if fine, at the end of three weeks. I generally found the pulse to gradually subside to its regular standard from the end of the fifth and seventh day.

TREATMENT.—A more judicious general outline of treatment cannot be adopted, than the one recommended by Professor Sewell in the notice of the English Agricultural Society; equally so upon the same principle, is that of the Earl of Surrey, as published in your valuable Journal, for the benefit of his tenantry and the community at large. Looking at the disease as an inflammatory affection of the mucous membranes, particularly of the living membranes of the mouth, stomach, and intestines, the treatment cannot be too mild; therefore *drastic purgatives* are inadmissible, and fatal in their consequences. I therefore simply ordered a quarter of a pound of Glauber's salts to be administered once or twice a day, dissolved in a pint of warm water, to which was added a quarter of a pint of cold drawn linseed oil, just to keep the bowels soluble, but not to purge or irritate them. This was continued for a fortnight, during the third week it was only given every other day, and in the generality of cases was seldom required beyond the latter period. Bleeding was not had recourse to, unless there was much sympathetic fever evinced, by quickness of breathing, and an increased frequency of the pulse, often arising from great pain in one or more feet; when the abstraction of four quarts of blood, repeating it if necessary the next day, generally took it off, at the same time fomenting the feet in tepid water twice a day, and immersing them in bran poultices; but the poultices must not be had recourse to as a general rule, as being objectionable on account of the ligatures employed to keep them on, and also from having a tendency to promote the ulcerative process. The ulcerated parts of the feet should have the detached horn moderately pared off, but where slightly affected they do best without paring at all; on the other hand, where they are badly affected, and the ulcerative process has gone on deeply under the sole, free paring must then be resorted to; the parts affected must be washed daily with a strong solution of blue vitriol, and where free paring has been employed, they should be smeared over with warm tar, or else, if very bad, have pledgits of tow soaked in the mel-

ted tar and fastened *easy on*. The mouths should be dressed daily with a strong solution of common alum and water. This plan of treatment will be sufficient to restore the greater bulk of the infected animals with little or no deterioration of condition, but in many instances they will come out of the course of medicine much improved in their general appearance. We had on one occasion 33 head of stock under our care, belonging to Mr. Lewis, the esteemed and respected steward of his Grace the Duke of Sutherland, 27 of which he had just bought in for feeding; when they arrived home, four or five were found lame, and although they were turned by themselves into a straw yard, yet the whole were infected in a little more than a fortnight. In three weeks from each cow's attack, they were by the above treatment 2½ a head better in their appearance and condition. I have no doubt they would become ripe for the butcher earlier than if they had not been attacked by the disease, simply from the impetus given to their constitutional powers, arising out of the thorough course of medicine the system had undergone. However, there are always more or less of complicated cases arising, which will require all the skill and tact of a regular veterinary surgeon to manage successfully, therefore the agriculturist will do well, where practicable, not to neglect availing himself of the general surveillance of such a man, when his cattle are attacked.

The pigs were affected similarly to the cattle, but ran through the disease more mild, although in many instances their hooves came off; but by dressing as directed for the cattle, the feet soon hardened and did well. The mouths were washed daily with the solution of alum, and internally; from one to two ounces of glauber salts dissolved in water according to the size of the pig, was administered in their food, they were convalescent in a fortnight or three weeks. My observations relative to sheep I will give you in another paper; I can only observe here, that Glauber's salts were found prejudicial to them, and that they required the treatment, to my surprise, to be modified accordingly.

I remain, Sir, yours most respectfully,
THOS. MAYER, Sen. V.S.
Newcastle-under-Lyne, Staffordshire, Jan. 2.

EDUCATION OF YOUNG FARMERS.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—In the December number of the Magazine, "A Juvenile Reader" wishes information as to the terms on which young men are put out apprentices to farmers, and the best part of the country to go to, and the length of time he should be bound. Not having observed any answer to his enquiries, I beg to offer a little information, some of which may be of service to him. So far as I know, the fee charged is from £70 to £100 per annum for bed and board, in the house of a respectable agriculturist, and £25 to £30 additional if a riding-horse is kept. The best part of the country will be that of somewhat similar soil and climate to that where the apprentice intends to farm, or where a good system of farming is practised elsewhere. Regarding the length of time he would require to be bound, that will depend very much upon himself. I should think the most attentive could not be very fit to manage a farm in a shorter time than three years, even

although he had not been altogether a stranger to agricultural matters previously. I have had apprentices from different quarters, and can say, that those who took part in whatever work was going on, and who were desirous of learning all the operative departments, had most value for their money, because they were every way the fittest (other things being equal) to manage for themselves afterwards. Generally speaking, a farmer's apprentice should not have a riding horse; his attention and helping hand should be devoted to the business of the farm at all times, except occasionally out at markets or other meetings where information can be obtained.

Young men should never go to learn farming under a person not possessed of energy and skill in conducting his business; but it does not matter much where they are placed, unless they give attention to learn. I am, Sir, your most obedient servant,
A SCOTCH FARMER.

ON DRAINING.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Some considerable time since, there were in your very useful publication, the *Mark Lane Express*, directions for under-draining of land, the principles of which, from long experience in its practice, I am confident are very erroneous. There can be no doubt, but when it is judiciously done, no outlay of capital on land can be more advantageously made. On the other hand, I have seen in various instances a large outlay made, with very little benefit resulting therefrom. I am induced, solely on that account, to lay before your readers a few remarks of my own experience and practice on the subject, in which I have never failed of perfect success for at least forty years past.

The error of your correspondent above alluded to, is the direction he recommends his draining gutters to be cut; viz., up and down the declivity, instead of across it. I have seen many persons attempt to drain their land in this manner; they have properly formed their drains, carefully filled them with small stones to a proper height, and after all their heavy expence it has been attended with very little benefit to the land, as the drains have not had any beneficial effect more than a few feet on each side of them. The reason why, must be obvious to every practical man; viz., water, from the natural law of gravitation, has passed through the earth in veins or fissures, down the hill, for ages, and therefore a drain cut in that direction, would cut through only those immediately in its track, and consequently, as before observed, do very little good. The proper method is as follows; viz., in surveying the field intended to be drained, observe where the highest part of the field or piece of land is situated, and cut your drain as nearly across that part of it as will admit of a drop in every rod of about two inches, which will be quite sufficient, the carriage gutter into which all the drainers empty themselves should be made directly up and down the declivity, and about six feet from the hedge gutter, and emptied at the lowest corner of the field, in a safe situation free from obstruction of muck, or any other impediment to the water freely running away. The commencement of the work must be at the mouth of the carriage gutter, which should be about two inches deeper and wider than the drainers.

The distance apart and depth of the drainers must depend on the depth of the vegetable earth and the declivity of the ground. Where the latter is rapid

they ought not to be exceeding twenty feet apart; when the vegetable earth is deep, the drain should be proportionably deeper than in thinner soils. In general I have placed my drains about twenty feet apart, and about from two and a half to three feet deep, and filled them with small stones to within eight inches of the top, and filled them to the top with good earth, void of clay, with straw spread on the stones, to prevent the earth running down among them.

Should you find the above remarks worthy being inserted in your paper, they are at your service; I am fully aware of their imperfect style, but at the same time am certain, if they are carefully carried into execution, a great benefit will be obtained by the proprietors and occupiers of wet lands.

I am, Sir, most respectfully, your obedient servant,
JOHN WREFOED.

Broughton House, near Riverhead, Kent.
January, 12th, 1841.

ON THE WHITE OR BELGIAN CARROT.

By JOHN C. MORTON, Esq.

Chester Hill, November 18, 1840.

SIR,—I am desired by my father to send to you the particulars of the crop of white or Belgian carrots on Lord Ducie's farm at Whitfield. The extent of the piece is 1 acre 36 perches, from which 64 cart-loads of roots were taken. The average weight of a cart-load was found to be 10 cwt. This gives 32 tons as the total weight of the crop, which is at the rate of 26 tons 3 cwt. per acre. The soil is a deep sandy loam, belonging to the new red sandstone formation.

This is a heavier crop than any other on the farm. The seed was sown in the second week in April, on land which had been ploughed ten inches deep. It was sown on the flat, in rows eighteen inches apart, by the common Suffolk drill. The seed had been mingled with damp sand for several days previous, as well to sprout it partially, as to render it capable of being drilled, as carrot seed clings so much together. They are singled out when a fortnight old at intervals of six inches in the row, and two horse-hoings with a hand-hoeing whenever the weeds made their appearance, was all the cultivation they received.

The result is a crop not only much more valuable per ton than any other green crop we have, but also heavier per acre, and raised at an expense less by at least one-half than that attending the cultivation of the turnip.

The crop on the land the year before was Swedes, which were carried off the land and sold. No dung of any kind was put to the carrots.—I am, Sir, your most obedient servant,

Ph. Pusey, Esq., M. P. JOHN C. MORTON.

NOTE BY MR. PUSEY.

This carrot, though it has been long grown as a field-root in Flanders, has been but very lately introduced into England: it is, however, much liked by those who have tried it in my own neighbourhood. A farmer, Mr. W. B. Harris, who has grown it for two years on a good free loam, gives me the following account of it:—"On taking up my carrots and weighing them, I find they fall short of the quantity I grew last year. Instead of

the white carrots weighing nearly 32 tons per acre, they will only weigh 20 tons this year; and instead of the red ones weighing about 16 tons, they only weigh 12 tons this year. I have generally found the difference between the red and white carrot to be as follows (in all cases where I have weighed them, and in all cases of inquiry):—The white generally exceeds the red ones in weight from 8 to 9 tons per acre, when you take the average of the field as I have done now. I attribute the failure in my crop this year to two or three things. In the first place, the land was not subsoiled; in the second, they were planted late, and the weather too dry; and in the third place, they were hoed too thin—they were hoed the last time with a bean-hoe." Even the diminished crop of Mr. Harris, however, is very considerable, as it is equal in weight to an excellent crop of Swedes, and is twice as valuable. On some lighter lands, 16 tons of the white carrot were grown last year, where the red field carrot gave a very poor crop. I ought to add, that I have not succeeded in raising more than eight or nine tons myself; but this new root has in its favour the high practical authority of the Yoxford Farming Club, who "recommend strongly the cultivation of the long white carrot, as it produces a heavy crop of good quality, and adapted to strong as well as mixed-soil lands; will keep well; and is excellent food for cart-horses." It has been stated to me that there are two varieties, and that the best of the two is that which makes a large portion of its root above ground. Sir C. Burrell has grown it in Sussex, and has found it very productive. Colonel le Couteur informs me, "that in Jersey the prize-crop of parsnips this year afforded 318 lbs. to the perch, or 23 tons to the acre; while the white carrot, a prize-crop also, which he had cultivated experimentally, gave him 524 lbs. to the perch, or nearly 38 tons to the acre—an enormous crop," he adds, "which, if equally valuable for butter as the parsnip, will of course supersede it; as his parsnip-crop in the same field, cultivated alike, only produced 16½ tons, which, nevertheless, was a very fair crop."—*Journal of the Royal Agricultural Society.*

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Allow me to enquire through the medium of your Magazine, whether any of your readers have tried the Prickly Cumfrey (*symphytum asperum*) for soiling, on such a scale as to be able to give any information as to how it will answer for that purpose? I have a few plants of it and find it exceedingly productive, having cut 14 lbs. of green food at a time from one root; and I know of no plant that would answer so well, if cattle would like it, and thrive upon it.

I have no doubt that on good land it would produce 40 tons per acre per annum, with little or no expense in the culture; but I should like to know how cattle would do upon it before giving up much ground to it. They do not appear to be fond of it, but that may be owing to not having enough to give it a fair trial; as many sorts of food are not eaten by cattle readily at first, which they are fond of when used to. There appears to be a large quantity of mucilage in the plant, from which I should suppose it would be nutritious. Any information from any one who grows enough to keep stock upon it for any length of time, will be thankfully received.
Ld.

ON EXPERIMENTAL FARMS.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—We now again resume the subject of our former letters; to the last of which dated 20th April we would refer. We therein alluded to several experiments which had been instituted by Mr. Blackwood, in this neighbourhood, for the purpose of ascertaining the relative merits of salt as a manure in raising potatoes, turnips, &c.; and we are now enabled to say that the result of this year's crop of turnips, goes far to establish the fact that salt prepared in a compound, and applied in the way which we formerly described, will bear a comparison with the best description of farm-yard manure in this particular. For not only has Mr. Blackwood again succeeded in obtaining a very large crop, but we can also bear testimony to the fertilizing properties of the compound from our own experience, having this season, from its application, produced fifteen acres of very fine turnips. In the compost which we applied there was mixed seventy-five bushels of salt, or at the rate of five bushels an acre, and we remarked after the fermentation had proceeded for some time, that the texture and nature of the compost changed as it were, and the whole mass assumed a moist and rich appearance, which we ascribed to the operation of the salt in the mixture. It cannot however be expected that we are prepared to enter into a chemical analysis of this substance, or scientifically explain the manner and way in which it operates in the compound so as to produce these results. Our present object is rather to direct attention to the subject, for should this composition prove of general applicability, and we have no reason to apprehend the contrary from the success which has attended Mr. Blackwood's practice for the last six years, it will then be of the utmost importance to the agricultural community, that a knowledge of its beneficial influence as a manure or stimulant should be widely disseminated amongst them. It will be observed, that a general want of success has hitherto attended the numerous experiments instituted upon salt for agricultural purposes; but then these were never performed in such a manner as to prove satisfactory, for the great secret appears to be in submitting the compost to that degree of heat which is necessary to produce fermentation, and the process should be continued for some weeks previous to the mixture being applied to the land, so that the salt may either be decomposed or undergo some change from the fermentation which seems necessary for developing its fertilizing properties. Now the majority of those who have been in the practice of testing the properties of salt have either applied it to the soil in its mineral state, or have simply diluted it with some liquid; and even when a compound was formed of earthy matters and other substances, the salt was simply mixed with these ingredients before being applied to the land, or at all events without any attempt being made to produce that fermentation which appears to be essentially necessary to the success of the whole operation; hence the reason why reports of experiments on the use of salt as a manure have hitherto been as different as the soils on which they were made. We are aware that it has frequently been asserted by learned and scientific men, that salt is only a stimulant, and possesses no nourishment, but may excite the vegetable absorbent vessels into greater action than usual. We are not prepared to controvert this assertion, but the result of several experiments would go far to establish a different view of the matter. In proof of this we may be allowed to refer to an experiment which is

related by Dr. Holland, well known by his agricultural survey of Cheshire. "After draining a piece of sour rushy ground about the middle of October, he ordered some refuse salt to be spread upon a part of the land at the rate of eight bushels to the acre, and in another sixteen bushels. In a short time the vegetation disappeared totally, and during the month of April following not a blade of grass was to be seen. In the latter end of the month of May a most flourishing crop of rich grass made its appearance on that part where the eight bushels had been laid. In the month of July the other portion produced a still stronger crop. The cattle were remarkably fond of it; and during the whole of the ensuing winter (which is ten or twelve years since) and to this day, the land retained, and yet exhibits a superior verdure to the neighbouring closes." As further confirmatory of the above experiment, we may mention a circumstance that was related to us by Mr. M' Nab, the distinguished manager of the Botanical Garden near Edinburgh.

For the purpose of exterminating the weeds with which the walks of the garden were infested, and if possible prevent their growth, Mr. M' Nab applied a pretty large quantity of salt to their surface, which had the desired effect during the first season, as not a single weed could be seen; so powerful indeed had been its operation, that part of the box-wood edging with which the salt had come in contact gave way. But afterwards, instead of having any effect in checking the weeds, it tended rather to promote their growth, as they appeared during the second and third seasons in greater abundance and luxuriance than they had ever done before. It would thus appear that salt is susceptible of undergoing certain changes, both before and after being applied to the soil; but before we can arrive at a just conclusion with respect to the mode in which it operates so as to become a fertilizer, science must lend her aid to practice, and both must be combined to attain this end. One thing however, appears to be beyond the reach of dispute, that salt, on certain soils, and applied in the manner we have alluded to, and in certain quantities, has a fertilizing tendency. In alluding, however, to the probability of salt becoming a useful auxiliary to the farmer in the cultivation of his crops, we must not overlook the advantages that would result from its more extended application as a condiment and ingredient in the food of animals—qualities we apprehend, which as yet are very little understood; but that it might be so employed with great advantage, the following extracts go far to prove. It is stated in the Edinburgh Encyclopedia, "That salt given with the food of cattle augments its nourishment. That in proportion to the quantity of salt eaten by cattle, the effects of the augmentation are perceived. That no ill consequences follow its use even when given without stint. These propositions are supported by unquestionable evidence, and the trials of very many persons. Cran, in the jurisdiction of Arles, in the county of Provence, France, has an extent of six leagues by three, the whole surface of which is covered with small rough stones, and not a tree or bush is to be seen upon the whole district, except a very few scattered on the border; yet on this apparently barren spot, by the free use of salt, more numerous flocks of sheep are bred and reared than upon any other common of equal extent in the kingdom; and what is not less remarkable, the sheep are healthier, hardier, and endure the severity of winter with less loss than those fed and bred on more luxuriant pastures, and that have the advantage of greater shelter. Add to this, that the wool of the flocks bred and brought up in the Cran is not only the finest, but

bears the highest price of any in France. It is concluded that these surprising effects are consequent upon the unlimited use of salt, for allowing every excellence that can possibly be supposed inherent in the herbage, yet the quantity is so small, that without the abundant use of salt, a fourth part of the sheep kept in the Cran could not subsist on it." In Spain, where the finest wool in the world is produced, large quantities of salt are given to the sheep, to which they attribute, in a great measure, the fineness of the wool. Lord Somerville, who was among the first to introduce the practice of giving salt to sheep in England, states, in a communication with the Board of Agriculture, that "he purchased 300 merino sheep in Spain at about 22*l.* 10*s.* each, which he brought to England, and as they had been accustomed to receive salt in Spain, he continued the practice when he brought them to this country, and he also extended the practice to his other sheep. His lordship some years afterwards removed from the rich vale of Taunton, in Somersetshire, to an estate which he had purchased in Surrey; and this being a light dry sandy soil, he did not think it necessary to go on at such a large expense, as salt then was so heavily taxed; but for some years afterwards he lost many of his young sheep, which he was afterwards inclined to think might have been saved, had he continued as before, to give them salt, and he subsequently reverted to his former mode of giving his sheep their regular supply of this useful ingredient. He says, that sheep require more salt in the autumn and spring months, when the dews are heavier, than in summer or winter, and that they consumed at the rate of one ton for every thousand sheep annually." Lord Somerville, together with Mr. Curwen, Sir John Sinclair, and others, all unite in recommending the use of salt as a preventative against the diseases incident to wet situations, and their experience almost proves the necessity of it. Sir John Sinclair in his agricultural state of the Netherlands, says, "that at Mr. Mosselman's farm at Chenoi, beyond Wavre, he found that salt was used for sheep, and that by allowing them to lick it, the rot was effectually cured." Mr. Bracebridge, of Walton-on-Thames, also was induced to drench some sheep, which was affected with the rot, night and morning with strong brine, after which he did not lose one; they became fat, and the meat was as fine and good as if the animals had never been affected. "In strong pastures," observes Lord Somerville, "when seasons are wet, the rot often spreads destruction over whole tracts of country; here salt must be beneficial. It is supposed, and with great truth, to correct acidity in the stomach, a disorder common to sheep even in Spain, but of a much more serious nature in the damp climate of Great Britain, more particularly when stocked on moist green food, such as turnips, vetches, and young clover." In Sweden, in Saxony, in Silesia, and in France, salt is given to sheep without stint, and with the best results. Now, when we consider these unequivocal testimonies in favour of the free use of salt, we cannot but express our surprise with Mr. Arthur Young, that "this practice should be common management in almost every country in the world, England excepted."

LIME.—Were we called upon to state any one branch of rural economy wherein the greatest errors have been committed, and the greatest amount of capital to the least purpose expended; it would be in the preparation and application of lime, for independent of the actual cost in the first instance, there are practical proofs innumerable, where the productive powers of the soil have been most materially deteriorated by its application; and had it

not been from the circumstance that the caustic state of lime is easily and rapidly changed, or modified by the beneficial influence of the atmosphere, &c., the injury, which in many instances the land would have sustained, would have been so apparent as to have deterred many farmers from applying it as a fertilizer; for, were it not for the correcting cause referred to, many of those fields which had been excessively dressed with hot lime, would in a great measure have been rendered sterile and unproductive until the soil had again been replenished with a fresh supply of organic matter. But whatever difference of opinion may exist amongst agriculturists with respect to the economy of applying lime, there can be none in regard to its preparation. The facility with which lime rock is pulverized, when freed by heat from carbonic acid gas, is caused from the powerful attraction which this substance has for moisture; now it is just this very circumstance which renders its proper management a matter of so much nicety, for experience has shewn that lime, when it is exposed to the influence of the atmosphere, and in contact with the earth's surface, has such a natural attraction for moisture that no mechanical power can arrest its progress, and prevent that natural tendency which exposure subjects it to—of becoming saturated with moisture, and then, as a consequence, of running together in a body. It is therefore of the utmost importance to the successful application of lime, that the particles be previously completely separated from each other, as the more minute it is in all its parts, the more efficacious will it prove. For every one who is in the least acquainted with lime, must be aware that it differs from every other substance which is applied to the soil, in so far that it is not susceptible of decomposition from the influence of the atmosphere, &c.; but on the contrary, the longer it is exposed, its permanency becomes more confirmed, and as a consequence, its effects are comparatively negative, unless the alternative is adopted, of either reducing it by mechanical force to a powder, or burning it over again. It will thus appear from these remarks, that both the preparation and application of lime merits our most serious attention; for although this substance has hitherto been considered as one of the most important auxiliaries to the amelioration of the soil, still our present knowledge enables us to discover that in many instances its application must not only have been ineffectual, but often absolutely hurtful. It must, however, be admitted, that while our scientific knowledge may be improved with respect to the chemical action of lime upon the soil, yet in our practice, we at this moment, with few exceptions, persevere in and adhere to that system which is not only proved to be erroneous, but which annually involves the farmer into useless and wasteful expenses. It would therefore be of the utmost importance to the agricultural community were some system devised, whereby this injudicious mode of management could be clearly made perceptible to the understanding of agriculturists; and although we are not so sanguine as to suppose that every farmer might be made capable of distinguishing a soil, so as at once to comprehend the chemical action of lime upon its fertility, yet by means of an experimental farm, science and practice would be so combined, that the chemical properties of lime in all its different forms and combinations might be directly exemplified, and the results noted; for there is nothing more certain, than that farmers do evince a most anxious desire for every thing that savours of the practical; what they want, indeed, is well ascertained facts, and these can only be obtained by

means of a practical field of operation. The disadvantages of a part of our present mode of management was clearly established by Mr. Dawson, so early as the middle of last century. In two adjoining fields he tried the comparative advantages of ploughing down the lime and merely harrowing it in; both were sown with oats and grass seeds. In the latter case the oats were a full crop, and the plants of grass abundant; and although they remained upwards of thirty years in pasture, they still produced white clover, and other fine grasses. In the former case the oats were also a full crop, and the pasture continued good during the first year, but afterwards all the finer sorts of grasses were displaced. It is Mr. Dawson's opinion, that it would require more than treble the quantity of lime to produce the same effect when ploughed down as when harrowed in. His instructions, however, are but little attended to, and his practice disregarded. And why? Because past experience has shown that neither Mr. Dawson, nor any other private individual, however great their discernment and abilities, are enabled, even though willing, to concentrate the attention of agriculturists upon any given object, however apparent and great may be its advantages. It requires such an institution as we have been meditating, supported by all the influence of a powerful proprietary, and directed by the abilities of both scientific and practical individuals to attain this end.

BONES.—We shall briefly refer to this substance as being one of those fertilizers which have more recently been brought under the notice of agriculturists, not however with the intention of entering into its merits as a manure, for these are manifold, and already well understood throughout the country. Our observations will therefore, in a great measure, be confined to the circumstances attending the introduction of bones, and the difficulties which presented themselves before the agricultural community could be made aware of the advantages resulting from their adoption, affording as it does, another powerful argument in favour of having a general centre of reference for the purpose of solving any problematical question, and disseminating the knowledge of it. When potatoes, turnips, clover, &c., were first introduced into this country, there were few, if any, agricultural associations in existence, whether local or otherwise, and many circumstances might be brought forward in extenuation of the slow progress which these made at that time before their cultivation was generally adopted; but at the comparatively recent period when bones were introduced, agricultural associations abounded in almost every district, and we therefore cannot reconcile the laxity displayed by farmers in adopting so important an auxiliary in their management, without being convinced of the utter inefficiency of these associations as at present constituted, to bring any system into notice, so that its operation may be simultaneous and generally beneficial. It was only about thirty years since, that the value of bones began to be discovered in this country, and at that period, and for many years afterwards, they were only partially known in a few counties. The effects, however, produced by the bone system of management have been wonderful; in short, this important article has been the means of bringing more waste land into cultivation than perhaps any other substance which has ever been brought under the notice of agriculturists.

But let us now enquire how this great change was brought about, and how long this system was pursued by a few isolated individuals before its importance was generally known and appreciated.

The time is not so far distant, but that many individuals can remember, when bones were broken with the hammer in the counties of Lincoln and Nottingham, and put into the ground in very large pieces, at the rate of seventy to eighty bushels an acre. In 1812, the bone-crusher from Nottingham might have been seen with a saucer in one hand, shewing his half-inch bones, and in the other a turnip, as a specimen of their fertilizing powers, at the same time entreating the farmers only to make a fair trial of them; subsequently they were drilled in with the seed, the turnips, at the rate of from twenty to twenty-five bushels an acre, while some of the higher managers put in forty bushels per acre. The benefits resulting from using bones were, however, well understood for many years in several counties in England, before the practice found its way into Scotland; and although a few individual farmers may have adopted the system from observing its advantages, yet we are mainly indebted to the mercantile body for their final introduction and extended use in Scotland. For not only did our merchants commission the bones at their own cost and risk, but it was only by using the most pressing solicitations, and the greatest perseverance, that they were enabled to get the generality of farmers to comprehend their advantages, or even to give them a patient trial; and it is only within the last few years that the demand has in any way been commensurate to the benefits derivable from their use, in connection with the extension and advantages of the sheep system of husbandry. Now, when we consider the length of time that was allowed to transpire before the beneficial effects of this highly important manure was made manifest in Scotland, even long after its advantages were known and appreciated in England, we cannot but regret that improvements of such a nature should be left to the merest chance or accident; or that the best interests of agriculture should be sacrificed and retarded for so many years, merely from the want of co-operation in that body whose interests it would tend most to advance. But this is not a solitary instance that might be brought forward in condemnation of our present inefficient means of co-operating for the diffusion of agricultural improvements; on the contrary, it will only be necessary to direct attention to rape-cake, saltpetre, nitrate of soda, soot, &c., &c., to shew the partial manner in which such substances are understood by a few individuals, before they become of general import to the agricultural community. It therefore cannot but appear evident, even to the minds of the most indifferent, that there is something in our present system which imperiously demands an immediate and most searching enquiry.

We shall now—for the present, at least—conclude our observations on the subject with the following remarks—not that we consider the matter treated of as exhausted, or its importance lessened, but rather that we conceive time to be required before agriculturists are sufficiently impressed with the advantages to be derived from such an undertaking as the one we have been advocating. We might still bring forward many more examples in support of the views which we have formed with respect to the utility of an experimental farm; but we believe enough has already been stated to impress upon every unprejudiced mind the necessity and national importance of such an institution, affording, as it would do, an opportunity to a qualified individual of bringing to a successful issue a series of practical and useful experiments, which could not fail ultimately to prove of the utmost advantage to the prosperity of the farming interest, as by this means the most intricate and difficult theories relating to the

art would be tested and solved, and thereby rendered subservient to their convenience and practice. In an investigation of the hidden resources of agricultural improvement, much interesting and authentic matter would be brought to light, and results arrived at, which had not hitherto come within the knowledge of the practical agriculturist. To the student of agriculture such an establishment would prove of the utmost consequence, for, although it has been an almost universally received opinion, that theory ought to precede practice, yet experience has not confirmed the utility of this mode of procedure; on the contrary, we are convinced, and, in fact, it is reasonable to suppose, that theory and practice combined will tend more to enlighten the mind of the student, and enable him to arrive at more correct and just conclusions, than if he were taught the science and practice separately. In confirmation of this opinion, I may be allowed to quote the authority of Chaptal, whose name is well known as one of the illustrious members of the National Institute of France. He remarks—"I was induced to adopt this plan," referring to his work on Chemistry, applied to the arts, "by the opinion I have long entertained, that the intelligence which elucidates practice must succeed the latter. I am in fact convinced from my own experience, that a man who is already acquainted with the mechanical and practical part of an art, receives instruction with much more advantage than another who is neither in the habit nor in the practice of its operations. For the latter, everything is abstract; because the principles he is taught apply to nothing that he already knows, and either are soon obliterated from his memory, or take a wrong direction there. The first, on the contrary, reflects on his own experience all the light that is transmitted him; he has in his practice the confirmation of all that is told him; he refers all that is said to all that he does; he compares the theory with his own operations, and in a manner identifies it with them." Not only, therefore, would the agricultural student be benefited by an experimental establishment, but the mechanical and scientific knowledge of the art would be accelerated by its adoption. Indeed, the names of many eminent men might be quoted to show the importance which they attach to an experimental farm—men, eminent for their scientific knowledge, and who have devoted much of their time and attention to the theory of agriculture, but who have hitherto been often unable to reduce those theories so as to meet the practical operations of husbandry, from the want of a field whereon to test and perfect their experiments. For not only has the mechanical operations of the agriculturist to be nicely proportioned and performed, but, unless those natural causes to which the art is subject, are thoroughly investigated by a long series of patient scientific research, and their influence, so far as lies in our power, either mitigated or otherwise, by means requiring the nicest discrimination, it will be impossible ever to arrive at a just conclusion, or satisfactory result. The difference between failure and success in practice usually depends upon slight circumstances, very easily overlooked, and not to be anticipated beforehand, even by the most skilful; their importance is often unsuspected till an experiment has failed, and may not be discovered till after many unsuccessful attempts and numerous failures have been the result. Whatever difficulties may, therefore, be found in correctly solving any problematical question relating to the art of agriculture, there cannot be a doubt but these will be materially lessened by the experimenter being thoroughly acquainted with the principles upon which practice is founded, as he will thus be enabled

with greater advantage to investigate and apply the minor details of cultivation with more success to the full development of the theory. In order to attain this end, however, it is not only necessary to understand distinctly those vital actions which have a direct reference to cultivation, but it is also necessary to study the manner of life which is peculiar to the vegetable kingdom, and to ascertain what the laws are by which the numerous actions essential to the existence of a plant are regulated. It is moreover requisite that the causes which modify those actions, either by increasing or diminishing their force, should be understood. Mr. Lindley, in his introduction to the *Theory of Horticulture*, is particularly urgent upon these points; and he adds that "the vital actions of plants have so little resemblance to those of animals, that we are unable to appreciate their nature in even the smallest degree, by a reference to our own sensations, or to any knowledge we may possess of animal functions."

Nor when we have thoroughly studied the phenomena of vegetation, are we able to discover any analogies, except of a general and theoretical nature, between the animal and vegetable kingdoms. It is therefore necessary that plants should be studied by themselves, as an abstract branch of investigation, without attempting to reason as to their habits from what we know of other organic beings; and consequently we are not, in this part of Natural History, to acknowledge any theory which is not founded upon direct experiment and proved by the most satisfactory course of enquiry."

Such then is the opinion of Mr. Lindley; but there is scarcely any writer upon the science of agriculture of the present day, who does not lament the difficulty of arriving at any just conclusion upon the subject of their investigations, from the want of a practical field of operation for the purpose of proving the utility of their experiments. Dr. Madden, whose recent communications to the *Quarterly Journal of Agriculture* upon field manures has been of the utmost importance, to the agricultural community, is not less decided upon this point. He has more than once in the course of these communications stated the impossibility of arriving at the truth without the aid of direct experiment; not merely to determine the various points necessary to be attended to, in order to obtain success; but likewise the precautions which must be used to render them of practical application. "As regards," says Dr. Madden, "the various circumstances which should particularly engage the attention of the scientific investigator, it may be observed generally, that from the present extremely imperfect state of this branch of vegetable physiology, the more numerous they are, the more trustworthy will be the conclusions which are drawn from their consideration; for although, as the science advances, many of these may be proved to be of no consequence, still, in its present state, the more minutely each circumstance is noticed the better, as it is always preferable to err on the side of too minute enquiry, than to run the risk of drawing false conclusions from the omission of some circumstances which might appear trifling at the time, but subsequently prove to be of vital importance to the establishment of the truth." If then such be the opinion of men who must have a thorough knowledge of what will prove conducive to the full development of those subjects which they may have under investigation, why do the agricultural community hesitate any longer to establish an institution of the nature proposed, so as to bring to a successful issue, those theories

which are often found so necessary and applicable to agricultural improvement?

The Highland and Agricultural Society of Scotland, from its great influence and extension of its members throughout every part of the country, would be well qualified to undertake the formation of such an institution; but the proposition has hitherto, as it were, been crushed in the bud, and we are much afraid that official influence has not been wanting to prevent any encroachment upon the good old system.

That many members of the Highland Society, however, entertain a different view of the matter, may be gathered from the proceedings which recently took place at the Society's annual exhibition, which was this year held at Aberdeen, and to the account of which we would refer. It will there be observed, that the question of an experimental farm was brought before the meeting, and the utility of the measure strenuously supported by men, not only eminent for their scientific knowledge, but also by those who have practically experienced the inconvenience and difficulty of reducing any new theory to the every-day practice of the farm. We would here observe, that the gentlemen who brought forward and seconded the motion for an experimental establishment, are both men of much practical experience in everything which is likely to advance the improvement of agriculture, and that they have devoted much of their time and attention to agricultural pursuits. Indeed, the proposer of the motion is well known throughout a wide district, as one well qualified to judge of such matters from his thorough practical knowledge of the several details which are necessary to the economy of every agricultural operation.

We may therefore hope, that the time is fast approaching, when the Highland Society, through the influence of its own members, will be induced to give the measure a more serious consideration than heretofore; for we do not speak unadvisedly, when we say, that the present proposition was not brought forward by those gentlemen from any momentary excitement; on the contrary, we can safely affirm, that the attention of one of them, at least, has for some years been directed to this matter; indeed, so thoroughly convinced is he of the utility of the scheme, that he has not hesitated to declare to us, that unless the managers of the society introduced something of a more useful and practical nature into their proceedings, their exertions, however, well intended, would soon be found behind that of the more enterprising portion of the agricultural community; and that, although the means which they had hitherto adopted for the advancement of agriculture might, perhaps, have been adapted to the by-gone age, yet now, when science was beginning to lend her aid to perfect and improve the art of cultivation, it was full time for the members of the society to beatir themselves, and concentrate their exertions into a more useful and practical field of operation and experiment. Indeed, when the excitement attending these annual exhibitions begins to subside, practical men are afterwards led to enquire into the benefits which the country is likely to derive from such exhibitions; and it must be allowed, that a strict investigation into the circumstances will satisfy every unprejudiced mind of their utter inutility to meet the end, which, every one must allow, the members of the society have in view, viz., the advancement of agricultural improvement. Under these circum-

stances, it may, therefore, be expected, that a change will at no distant period take place in the sentiments of the members of the Highland Society; and it is only to be hoped, that those who take an interest in this measure, will view it with that liberal spirit and comprehensive judgment to which we conceive its importance entitles it, and which will be found absolutely necessary to the full development and success of the scheme. We are the more particular upon this point, inasmuch as many individuals have manifested a desire to participate in the advantages of such an institution, and are at the same time thoroughly convinced of the benefits which they would derive from its operation; but still their views with respect to the principles upon which such an establishment should be formed and conducted, are limited and circumscribed in the extreme. Indeed, they too often overlook what we consider the most essential, if not the principal feature in the whole undertaking—for it should always be kept in view, that while an institution of the nature proposed would be steadily instituting experiments, and adapting them to the practical operations of the husbandman, it would also act as a centre of reference and communication to those numerous local agricultural societies which are at present in active operation in almost every district. Such an establishment, under a matured and well regulated system of management, would not only receive reports from these sub or local associations of any new improvements which might from time to time occur, but a knowledge of the several modes of management which are at present pursued in the different districts would also be obtained, and a comparison instituted, which could not fail to prove highly beneficial.

It is by obtaining these reports, testing their utility, and disseminating the knowledge of them amongst the agricultural community, together with their own experience, that such an institution would prove so desirable and useful, and have such an important tendency to the furtherance and success of every new improvement, which required the test of experience before being rendered available or profitable in general practice.

We have already given numerous examples in the course of these letters, all tending to prove that the want of such an organized system of communication has hitherto materially retarded the advancement of almost every agricultural improvement, and that years often elapsed before the farmers in one district obtained a knowledge of the ameliorations which were progressing in another.

To those, therefore, who may have only taken a limited view of this subject, the means to be adopted to promote the success of the undertaking may at first sight appear to be of a very enlarged and intricate nature, but the details are simple, and method is only necessary to obtain a successful result. The manager of such an institution would find little difficulty in organizing a system of mutual intercourse with the local associations already established, as the assistance of the secretaries of these societies would only require to be obtained to render the system available; and were this co-operation and intercourse once methodically established, we have no hesitation in saying, that little more would be required to keep alive that interest which the sub-associations would naturally feel in the success and results of the several experiments instituted, either directly, or through the auspices of the parent establishment. In fact, the advantages resulting from such an establishment would soon become so conspicuous and important to the agricultural community, that we have no doubt

numerous local experimental fields, on a smaller scale, would speedily spring into existence in different parts, and thus facilitate the operations of the centre and governing institution, and at the same time more effectually extend its usefulness.

Let those, therefore, who are friendly to an experimental establishment, keep steadily in view the necessity of having a centre or rallying point, on a scale commensurate to set the whole machinery in motion, and under such management as is likely to ensure its success; for without such a governing head, both to control and direct, it will be impossible to obtain that success which otherwise could not fail to attend a well appointed and regulated establishment. About a century since, when there were few or no agricultural associations in existence, and when little or none of that enterprise and intelligence which is at present displayed by agriculturists was manifested, it would have been indeed difficult, if not impracticable, to have organized any regular system of communication, such as we have been meditating; but now there are no obstacles to remove to attain this object; on the contrary, there is no country in the world within which there are greater facilities for carrying this measure into effect, and where circumstances are so favourable for collecting and promulgating the knowledge of every agricultural improvement from one district to another. But the operations of such an institution would not be confined to this country alone; it would extend its investigations to other countries, and embrace every opportunity for collecting information upon subjects which might tend to the advancement of our agricultural prosperity. The manager, through the influence of the members of the institution, would have every facility for obtaining correct information with respect to the different systems of cultivation pursued in every part of the civilized world, and would thus be enabled to compare them with our own, and practically ascertain their relative merits. Although we may consider ourselves far beyond other countries in the comparative perfection of our cultivation, still there are few systems of management, however primitive, from which something may not be learned; and as the human mind is always prone to view with indifference any natural production, however valuable, when once it becomes familiar to our observation, yet when our reflecting powers are aroused by any new or striking circumstance, our minds are then led to form those comparisons which are so necessary to enable us correctly to estimate the comparative value of any particular system or object.

The importance of extending our enquiries beyond the circumscribed limits of our own country, will, however, become more apparent if we reflect upon the circumstances connected with the introduction of many of the roots and plants which are now in extensive cultivation.

POTATOES, for instance, although brought into England about the end of the 16th century, were long confined to the gardens of the nobility and gentry, and in Scotland were not planted in the open fields until the year 1792, upwards of 200 years after their first introduction; and yet this root, which had been so long neglected, now constitutes the principal article of food, upon which a large proportion of our population depends. Turnips also, although known in Britain before the potatoe, did not come into general cultivation until long after the days of Tull, a Berkshire agriculturist, who introduced the system of drill husbandry in the year 1701. And how, we would ask, stands the case in this country at the present moment, with respect to

our knowledge of the different kinds of grasses that might be advantageously cultivated? Out of 215 distinct species which are suitable to this climate, from two to three only are used. And why? Simply upon the principle of use and wont. Rye-grass, so highly prized by British farmers, appears to have been cultivated previous to the year 1677, being considerably upwards of a century and a half ago; and although it is deficient in almost all the qualities of a good pasture grass, and although nature, when left to herself, testifies most unequivocally to the fact, that a luxuriant sward can only be obtained by a proper combination of different species of grasses, yet her suggestions are unheeded, and each succeeding race of farmers continues to adhere to the practice of a by-gone age—to their own individual loss and that of the community.

The grand and distinguishing characteristic of plants over inorganic matter—that which characterizes their latent powers and living functions, is their susceptibility of improvement, not only so far as they embrace the support of the inferior animals, but also of that part which forms the direct ingredients of human sustenance. It is therefore reasonable to suppose, that there exists a degree of excellence attainable by varieties over the species whence they have sprung; yet, as that degree is unknown, we are justified in regarding it as progressive, and in considering the production of a good variety as the sign or harbinger of a better.

We have thus attempted to shew the advantages of an experimental establishment, and as we have already stated, were the Highland Society, or any other influential body, to set about the establishment of such an institution, they would find all the subordinate machinery in existence and ready to co-operate in the general plan. At present these associations are comparatively of little use; but had they the benefit of a governing head, and were the energies of each directed to the promotion of the one great object in view, who can estimate the magnitude of the benefits that would ensue? It might, however, be remarked, that while no body is so well fitted to occupy such a prominent position as the Highland Society, still, at the same time it must be admitted, that the success of the scheme will in no small degree depend upon the talents and activity of the manager; but that many individuals will be found with sufficient qualifications to undertake this duty, there can be no doubt. If any difficulty presents itself to us, it is the risk of having some favourite thrust forward through the instrumentality of some influential individuals, without reference to his qualifications or fitness for the true discharge of the onerous duties which cannot fail to belong to such a situation. We would therefore say, let the manager of such an institution be elected upon a broad and liberal basis; let the members of every agricultural association appoint a committee for this purpose; and let these committees in their turn choose out of their number an acting committee, to controul and direct the manager and the affairs of the institution; and let there be a special clause in the agreement when such manager is appointed, that such committee of direction have the power, when they consider the manager either incapable, or not performing his duty in an efficient manner, to bring his conduct before a general meeting; and if the explanations of the manager are not then found satisfactory, that a majority of such meeting will have it in their power to deprive him of the management. This mode of procedure in choosing a manager must not be regarded by the members of the Highland Society as throwing any doubt upon their

capacity for judging of the merits of a candidate; on the contrary, by adopting the plan we have proposed, it will be observed that the tenantry will have an interest in the matter, and as most of the members of the Highland Society are landed proprietors, and are therefore likely to be connected with either one or other of the local associations, their interest and that of their tenantry will be thus amalgamated, and the landlord at the same time will not be deprived of a voice in the choosing of a manager, nor of his ordinary influence in the direction of the affairs of the institution.

In conclusion, we would beg to remark, that at this moment, proprietors especially, are imperatively called upon to take some steps in order to enhance the productiveness of the soil, by removing those difficulties which are more immediately connected with agricultural improvement, thereby enabling us not only to meet the wants of an increasing population, but as also tending towards the prosperity of our commercial and manufacturing interests. We ask for no artificial prop. All that we require is, the development of the inherent and native energies of the soil, being fully convinced that nothing more is necessary to place it in a prosperous and a permanently improving condition.

Dec. 16, 1840.

A SCOTCH FARMER.

TO THE EDITOR OF THE CARLISLE PATRIOT.

SIR,—I have accidentally met with the enclosed paper, headed "Advice to Farmers," among some old manuscripts; as it may be interesting, and perhaps useful, at the present time, I shall feel obliged to you if you will insert it in the *Patriot*. I have no doubt it was printed in the year 1746. It is endorsed by a relation of mine, who was living at that period. I may also mention that I happened to meet with the following remark in *Medulla Historiæ Anglicanæ*, Feb. 1747:—"The distemper amongst the horned cattle, which had raged in a most alarming manner in this kingdom, began now to abate."

I am, Sir, yours truly,

WALTER FLETCHER.

Dalston, Dec. 16.

ADVICE TO FARMERS.

Permit no person, who comes from any suspected place, to go near your cattle, nor to go into any of your out-buildings, though none of your cattle are in them. Take the same precaution with regard to any horse or dog that can be suspected to have been where the infection is.

Do not go yourself out of curiosity, to see any infected cattle, nor into the houses or grounds, where they have been.

If you think any of your cattle likely to begin of the distemper, immediately separate them from all possibility of communication with the rest; and keep them very warm (but give them no physic or drink) for the first four or five days; let them have no other nourishment but warm water, mixed with a little oatmeal, of which, let them drink as much as they please.

After the first four or five days, give them the finest hay you can procure, in very small quantities, still continuing the warm drink with oatmeal, and to keep the cattle as warm as you can.

Let the person who attends the sick beasts take the precaution of changing his clothes after he has been with them; and notwithstanding that precaution, let him not go near any other cattle, nor into any out-building, though no cattle are in them, nor into any grounds where cattle are.

Suffer no other person, but he whose business it is, to go near the cattle that are distempered.

Take great care that no dogs (either of your own, or other persons) get amongst your sick or sound cattle, nor into any of your out-buildings. If any beast dies, cause all concerned in the burial to change their clothes.

Let the cow-house, where the distempered beast has been, be carefully washed with vinegar, verjuice, or tobacco water, and the floor strewed with unslaked lime; and let all the straw, hay, or other fodder which remains there, or upon which the distempered beast has breathed, be burnt.

If they recover, place them in a pasture, as remote and private as possible from the rest of your cattle.

And if it be a milk cow, as soon as she begins to recover, her milk will return, and the person who milks her is not to go near any of the rest of the cattle, nor into any of the out-houses, nor into any of the grounds, but those only in which the recovered cows are kept.

SEVERE FROSTS.—It is stated in the *Farmer's Almanac* that "in the year 987, the frost which set in on the 22nd December lasted 120 days; and that of 1729, which lasted nine weeks, began on the 24th December; but the great frosts which have visited England, have generally commenced much earlier. The greatest frost of which we have any account—that of 759—set in on the 1st October, and lasted till the 26th February." There have also been several other severe frosts.

1145.—Severe frost commenced on the 9th of December and continued until March 1146.

1204.—Severe frost commenced on New Year's-day and continued until March 25.

1261.—Severe frost commenced; carriages and horses passed over the Thames, heavily laden, as on a common highway.

1269.—Severe frost commenced in November, and continued until February following.

1283.—Intense frost commenced; on the breaking up of the ice five arches of London-bridge were carried away.

1434.—Severe frost commenced on the 24th of November, and continued until February 10.

1467.—Severe frost and much snow, obstructing the navigation of the Thames, commenced on the 21st of December.

1468.—Severe frost commenced with the year, and on the 9th of January the river below bridge had all the appearance of a general wreck.

1515.—Severe frost, and so great that carriages of all sorts passed on the ice of the river from Lambeth to Westminster.

1564.—The frost so severe on the 21st of December as to admit of all sorts of carriages and diversions on the Thames.

1607.—As above.

1684.—The frost commenced about the beginning of December, and continued so sharp till the 5th of February, that the ice upon the Thames was as firm as land, and all manner of trades and diversions were exercised upon it.

1715.—A very severe frost commenced about the end of November, and continued to the 9th of February, and upon the Thames booths were erected, and two oxen roasted, &c.

1739.—A most severe frost began on Christmas-day, and continued eight weeks. A few days after it began a high wind arose which did damage to the shipping upon the Thames, being sunk by the ice, to the amount of 100,000l.

1766.—A violent frost began at the end of December and continued very severe until the 16th of January, then its severity somewhat abated for two days, when it broke out again with greater force, and continued until the 22nd. This frost, though of short duration, was most terrible in its effects.

THE TURNIP-SHOW AT TRING.

This Show took place at the Harcourt Arms Hotel, Tring Station, on Friday the 18th ult., but owing to the dreadful state of the roads, many who would otherwise have attended were absent. Of the several sorts of turnips produced, those of Mr. Matson, in point of shape, were considered the best, although not of the greatest weight. The challenge between Mr. Houghton and Mr. Matson was decided in favour of the former, the weight produced by Mr. Houghton last year exceeding that of any 50 Swedes shewn on this occasion. Indeed it is generally agreed, in this part of the country, that the growth of this year falls much short of 1839. Besides the various sorts of turnips exhibited by Mr. Matson, there were some very fine specimens of mangel-wurzel grown upon his farm at Wingham. The white carrots kindly sent by Lord Ducie from his farm in Gloucestershire, under the management of Mr. Morton, excited much admiration, the produce being stated at 26 tons per acre. Mr. Little's 50 Swedes were not only handsome in point of form, but were cleaned and shewn in the best manner. After the whole had been viewed by the visitors, dinner was announced.

In consequence of the indisposition of Captain Hamilton, M.P., who was to have presided, William Christopher, Esq., of Drayton Lodge, was unanimously called to the chair, supported by about 60 of the gentry, clergy, and respectable agriculturists of the vicinity. Dinner being finished, and the usual loyal toasts given,

The CHAIRMAN rose, and expressed the great pleasure he felt at meeting so respectable a company and so many of his neighbours at that place, being the first of the kind which had occurred since he first came to reside in the vicinity. Although not a practical agriculturist, he felt it his duty to attend meetings of this kind, and to mix with the farmers around him, inasmuch as he derived a great portion of his income from land, and naturally looked with great anxiety to their comfort and welfare. He concluded by proposing, with the greatest pleasure, "Success to Agriculture."

This toast having been drunk, the Chairman called upon Mr. W. Brown to read the result of the day's proceedings, which he did as follows:—

The challenge between Mr. Houghton and Mr. Matson for five pounds, was awarded to Mr. Houghton.

The weights produced by the several competitors challenged by Mr. Houghton for 50 Swede turnips, of the growth of the present year, as follows:—

	lbs.
Mr. John Brown, Tring Ford Farm	496
Mr. Hart, Ascot, near Wing	405½
Mr. Houghton, Norwood Farm, Rinslip..	351
Mr. Little, Tring Grange Farm	341½
Mr. Houghton, Upton, near Aylesbury ..	321
Do. Hannigan's Lodge	284
Mr. T. Woodman, Hemel Hempstead ..	269
Mr. John Woodman, Pendley	258
Mr. Houghton, Whyly, Sussex	242
Mr. Fuls, Park Farm, Wigginton	234

Besides these, there were several productions by parties not competitors, amongst which were 50 fine-shaped yellow Swedes (Skirving's improved), grown by Mr. Deacon, of Corner Hall Farm, weighing 331 lbs., fifty yellow Swedes grown by Mr. Pocock, of Hedges Farm, near St. Alban's, and various sorts belonging to Mr. Matson.

The report having been concluded, and the "cash" handed over,

The CHAIRMAN proposed the health of Mr. Houghton and the winners, which that gentleman acknowledged in a very practical speech of considerable length, remarking on the importance of the growth of turnips and green crops, giving a detail of the uncultivated breadth of land in this country, which he considered ought to be tilled; and he knew of no better instance of the production of such land than a farm which he purchased in 1837, under 84. per acre (formerly part of Bagshot Heath), and which land produced the turnips he shewed last year, averaging nearly 10½ lbs. each; besides which, it would give considerable labour for our increasing population. He concluded by observing the great advantage of such meetings as the present to the agriculturist, and by proposing the health of the Chairman, than whom a more worthy and charitable gentleman did not exist.

The CHAIRMAN acknowledged the compliment in a very feeling and appropriate speech, and proposed "Mr. Matson and the Competitors."

Mr. Matson in acknowledging the toast, took occasion to observe upon the civility and attention which had been paid to him that day, and of his intention to be present if he was spared another year. With regard to the cultivation of the soil, he considered it of the greatest national importance, and that we ought not to stop at trifling improvements, but continue the good work with increased zeal; by doing which, we might expect in the course of a few years to see our produce doubled. He considered a new light was breaking upon us, and his belief that the science of farming was now beginning to be known, and he looked forward for much benefit from the various clubs formed and now forming, and more particularly the Royal Agricultural Society of England.

The health of Lord Spencer and success to the Smithfield Show was drunk with three times three.

Upon the health of the Clergy being given,

The Rev. E. J. RANDOLPH rose to acknowledge the toast, and expressed his anxiety that some permanent institution should be formed in the vicinity, so as to offer premiums, not only to the farmer for the best production of turnip and other roots, but also to the labourer for the best produce of the garden, and also rewards for good conduct and long service, which would be the means of drawing together the landlord, tenant, and labourer. Nothing scarcely was done without the assistance of the labourer, who toiled from year's end to year's end in supplying our wants, and adding to our comforts; it was but just, therefore, that we should do something to mark our esteem of the most deserving of that valuable class of the community. After commenting at some length upon the advantages of meetings of this kind, where all parties had an opportunity of communicating their views and opinions to each other, he concluded by proposing, "That an association be now formed for the promotion of agriculture and horticulture, called the Tring Agricultural Association," which being seconded, was unanimously agreed to, and liberal subscriptions were immediately handed in to promote the object.

The health of Geo. Carrington, junr., Esq., was then drunk as a practical agriculturist, who took a deep interest in all that concerned the breeding of cattle and the science of agriculture.

Mr. CARRINGTON in his reply, made many admirable remarks on the condition and improvement of farming. He highly approved of turnip shows, and advised the candidates not to make the sweepstakes too high, as they would then have greater competition. He remarked that many of the specimens

shown were very fine turnips, but he wished to ascertain weight and quality per acre, and the quantity of nutriment which the turnips produced, for that turnip was most to be approved which would put most fat on the ribs of an animal. He believed attention to the turnip plant was requisite, it being a mere machine to absorb and turn to nourishment the manure found in the soil, and by attention that machine or plant would be discovered which was most advantageous. Mr. Carrington concluded a most useful and practical address, amid much cheering.

On the health and prosperity to the tenant farmer being drank, Mr. LITTLE, of Tring Grange, returned thanks, expressing his intention to do all in his power to promote an annual meeting of this kind, believing that emulation amongst the farmers would tend to better management and increased production.

The toast of the Visitors was responded to by Mr. Ryde. Several other toasts and songs followed, much to the gratification and pleasure of all present.

Several challenges were given and accepted for another year. Mr. Matson offered to grow an acre of Swedes against any man in England for any sum from 5*l.* to 50*l.*

THE TURNIP QUESTION.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I have but just returned home, having visited several friends in several counties since the Smithfield cattle show, and not having met with your paper till my arrival here, or I should have replied to it before. I have read with great satisfaction your leading article of the 21st inst., urging the necessity of establishing libraries for the purpose of instructing farmers in the science of agriculture; for whilst, from superior knowledge and cultivation of the mind, commerce, manufactures, and the fine arts, have made prodigious discoveries and improvements, agriculturists, whether from want of education, or indisposition to adopt new systems, or blind attachment to early prejudices in favour of old ones; either from one or all of these causes, they have made but very little comparative progress, and you do well, Sir, to arouse us from our lethargy; every enlightened farmer must feel indebted to you for your exertions in the cause. Thus far, Sir, our feelings are perfectly in accordance, but in some of your remarks we are quite as much altogether at variance. After accounting for the blunders which have sometimes been made by scientific men in their books, you proceed to observe, by way of set off, that "extravagant statements are not always confined to book-farmers, they are not unfrequently advanced by 'practical farmers';" and in support of your proposition, you advance a most unfortunate and incorrect illustration. You advert to a letter published in the *Bury Post*, signed by one "Rusticus," (by the bye, this gentleman would have done himself no discredit if he had attached his name and address to the letter) wherein it is alleged, that Mr. Matson, at the rooms of the Royal Agricultural Society, in Cavendish-square, in December 1839, made a statement of his having grown from 40 to 45 tons of Swedish turnips per acre; you then add, yourself, from a correspondence which has since been published—"It appears that some persons who had visited Mr. Matson's farms, saw no crops of turnips

in any degree approaching such a weight, and that no practical farmer would credit such a statement, unless he saw the full crop pulled and weighed—not a few perches here and there, but a whole acre.

Now, Sir, my statement may appear wonderful to you and many of your readers, and who have not, as I have, devoted chiefly 30 years to turnip-growing—it would be singular, in deed, if after all the thought and labour I have bestowed on them, I could not produce a crop which would appear enormous to the Norfolk and Suffolk farmers (and whose lands have been sickened by them for the last 40 years and upwards) whom your intelligent friend "Rusticus" tells you flatly "do not pay sufficient attention to quantity and quality, that they leave the growth of the seed to the cottagers in gardens, who make the selection, or rather no selection is made." Well might the Norfolk, Suffolk, and Beds. farmers marvel at my statement; but they are not alone ignorant on this subject, very many of the counties in England are quite as much in the dark; and probably when farmers in general have availed themselves of the information they will obtain at cattle shows and clubs, and when they have well stored their heads with agricultural lore at the libraries, they will arrive at the method of growing double the quantity and quality per acre that they now do. Great need, indeed, have we of libraries—of schools of agriculture, when we find that the great Norfolk, Suffolk, and Beds. farmers bestow no attention to the growth of their turnip seeds; I consider it quite presumptuous in any farmers, so utterly ignorant of the matter, to deny that my statement is true.

However, I made my statement—I offered a wager of 50*l.*, through the medium of your paper, that I would grow 40 tons per acre, and I now offer the like again for the year 1841. Did any one accept that challenge? No! What! 40 tons of turnips per acre, and which the *Mark Lane Express* declares to be so extravagant, that no practical farmer will believe it, and yet no man in all England has had courage, notwithstanding, to accept the offer. Oh! but you had some persons visited Mr. Matson's farms, and saw no crops of turnips in any degree approaching such a weight; those persons, you very well knew, were Messrs. Anderson, Sandon, and Dixon, and you also knew, when they visited my farms, they did not see the turnips growing; for in the published correspondence to which you refer, their complaint against me was, that all the turnips were not sown when they were at the farms. Of course you had a perfect right to suppress this circumstance, although it does make some slight difference in the matter, for these gentlemen could not possibly see turnips where no seed had previously been sown; whereas, your very candid statement would lead the public to believe, that when the trio of agricultural critics came to see my farms, the turnips had been sown, and had attained their full size and growth.

A word or two to your worthy ally "Rusticus," and I have done. He mentions having sown my seed with that of Mr. Skirving's, and in his opinion mine are an excellent sort, but he gives the preference to Mr. Skirving's. I have no desire to dispossess him of this opinion, and it may be that his soil and mode of cultivation may suit Mr. Skirving's seed better than mine; and if so, it does not at all prove the superiority of Mr. Skirving's seed over mine. I know this well, that on many soils, some seeds would be unproductive, when mine certainly grew a good crop. "Rusticus" says, that in their

rude cultivation and neglect as to seed, they can grow 20 to 25 tons an acre; and yet he considers 40 tons per acre enormous, when immense pains have been bestowed for 30 years in the selection of seed and the growth of turnips, and on land which has not been sickened by that invaluable root. As he seems disposed to turn his attention to the improvement of the turnip growth in Norfolk and Suffolk, I hope that he will know better in a few years—at present he has much to learn, although I think him an apt scholar, and an able contributor to your valuable paper.—I am, Sir, your most obedient servant,

ROBERT MATSON.

Wingham, Dec. 30.

THE TURNIP QUESTION.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—A rather mischievous turn has been lately given to useful discussions on certain points of experimental agriculture, by the admixture of ill-bred personalities which have nothing to do with the main question of “how the acreable produce of the land can be increased at the smallest cost?”—or to put it in other words, “how far superior skill and system can be made to lessen the outgoings, and at the same time leave to the tenant a fair profit, after deducting that modern rent, which landlords like to receive.” Setting aside therefore the little bickerings which have crept into the controversy between Mr. Matson and some gentlemen, as to the practicability of raising a certain weight of turnips per acre, the subject is well worth consideration, if taken up dispassionately, and the truth of Mr. Matson's assertions be established beyond a reasonable doubt, or disproved.

I am led to offer a few remarks from the circumstance of my having been an occasional visitant in the parish where Mr. Matson resides, and I have, season after season, gone over his lands, alone, or in company with one or more of his neighbours, and have invariably left with an impression on my mind that Mr. Matson is one of those stirring, quick-sighted, bold, persevering, and shrewd men, who are eminently useful in pioneering the beaten track class of farmers, and who for that reason is well deserving of encouragement and support.

No man, be he whom he may, is entitled to implicit credit, for merely saying that he can raise greater crops—all other things being equal—than others, unless he also shows that he actually does so. By this test I would propose that Mr. Matson's claims to superior tillage should be canvassed in a fair spirit, and fairly tried, because no mystery can prevail where the work is all out of doors, open to the scrutiny of friends and foes, from seed-time to harvest.

I submit, then, that Mr. Matson's growing crop of wheat be attentively looked at from time to time; the present condition of the land would do great credit to anybody, for it is evidently well farmed, and from the extreme cleanliness it has been brought to within the last few years it is likely that no expense whatever will be incurred in summer weeding; thus food for the plant will go exclusively to the nourishment of the crop, and scarcely a weed will be seen in the stubble after the wheat is carted.

He has a piece of land adjoining the Deal road which I remember a swamp not worth fencing in, but which has been under-drained, and would prob-

ably now let at a very high rent, especially if taken by any one whose main object might be to get as much out of the soil as presently to reduce it to its original state of unproductiveness, ill suited to the permanent interests of a landlord and his descendants. Here, then, are several acres added to the productive surface of the kingdom, as much as though it had been gained from the sea. Let the ensuing crops here be also closely watched.

His marsh lands have been brought from bog studded with rushes, flag, &c., dear at a crown an acre, into fatting land, bearing, in all probability, a high rental, which may nevertheless leave a handsome remuneration to the enterprising improver.

But turnips seem to be the great war-horse upon which Mr. Matson prances with most self-confidence. Local jealousies admit that in point of fattening qualities his sorts are unsurpassed, perhaps unequalled, although they may be exceeded in weight; at all events, his claims to superiority have drawn attention to the cultivation of this bulb, which is now allowed to be a foundation of all other crops, and I trust that such claims will further lead to the clear establishment of the fact, that forty tons per acre can be commonly grown,—not perhaps in Norfolk or Suffolk, which have been sickened during the protracted reign of that king of husbandry, my Lord Leicester—but in East Kent, and other parts, where the land is still fresh.

It is often said that no man is a prophet in his own country; but when I perceive men who disparage the efforts of an enterprising neighbour stealthily adopting his improvements, the rational conclusion is, that Mr. Matson's system, which partakes of the garden character, must be good, and reducible to practice at a profit, the problem is whether the landlord or tenant benefits most.

It is a pity that such men are not more thickly sprinkled over the whole country. Many are found to sneer at science, but let them be reminded, that Sir H. Davy states that the celebrated French chemist, Lavoisier, did in nine years increase his crops and stock four and five fold. Surely what has been done in France may be done in England, and I trust that no effort will be spared by your influential paper to turn every disputed point in husbandry to the general good.

I am, Sir, your very humble servant,

Dec. 30, 1840.

FAIRPLAY.

THE MURRAIN IN THE LAST CENTURY.

The following description and mode of treatment of the murrain, which raged amongst the cattle in England in the years 1745-6-7, possesses peculiar interest at the present moment:—

Extract from Dr. Mortimer's third Account of the Cow Distemper, read before the Royal Society, January 9, 1746-6.

Some milk bought in Christmas holidays, at the vineyard in St. James's park (where the cows were then free, though three had died in the park) had a rank smell, and tasted like rank butter, and though when boiled it did not curdle, the cream being put in tea curdled, but none who drank it found any inconvenience. That cow died, and another in forty-eight hours. The Doctor saw one of them opened, and the inflammation was greater than any he had before seen,

though she had been blooded once, just when taken ill, and also three weeks before. The cawl was greatly inflamed, and the paunch, and its inner coat peeled off; the liver was inflamed in some parts, and turned livid in others. The gall-bladder was very large, and the gall very liquid. The lungs adhered to the pleura, were greatly inflamed, turgid and black, but there were no watery bladders, nor had the cow a purging.—So violent and quick a progress seems beyond the power of medicine, but may be an argument for plentiful bleeding, especially as soon as there is a shortness of breath. The Doctor wonders how the distemper got into the park, which is never dunged or manured, the grass good, and kept low by horses, and the cows have plenty of hay in winter, and no fresh cows brought in since August, nor had any of the deer, who chew the cud also, fallen ill.

Mr. Theobalds, a diligent enquirer, observed, "That the first infection of this dreadful distemper among the cow kind was brought over from Holland, in 1745, by means of two white calves, which a farmer at Poplar, near London, sent for in order to mix the breed; the infection got to Maidenhead in Berkshire, by two cows brought out of Essex, and sold at the fair there. That there was observable a very disagreeable smell in the clothes of persons, who had been very conversant with sick cows; and that the infection had been propagated by means of sheep, who, it is presumed, carried it in their wool."

Dr. Parsons, another ingenious member, said, "That the cattle in the high grounds about Hampstead, Highgate, Milhill, and Hembdon, had hitherto remained free from the infection; but that it had spread all about in the lower grounds."

Mr. Hoffman, a learned Danish gentleman, said that, "The infection was first carried into Denmark by raw hides of cattle dead of this distemper, rubbed with wood ashes, in order to preserve them fit for tanning, which were brought from Flanders. That some cows sickened in a few days after the unpacking of these hides in Denmark; and that they have lost above 50,000 head of cattle in that kingdom."

Mr. Collinson, had been informed, "That a farmer in Essex, who had the distemper among his cows, invited a neighbouring farmer to come and assist him in giving drenches to some of his sick cattle; the good-natured man went accordingly, and spent best part of the day with his neighbour, to lend him his help in his distress, little dreaming of the ill consequence; for being so many hours with the diseased cows, so much of the infectious effluvia adhered to his clothes, that, as he was walking home, though a mile and a half, through a field in which several of his own cows were feeding, he no sooner entered but they left off grazing, ran to the farther end, snorting and flinging up their noses, shewing the greatest uneasiness at their master's approach, and endeavouring, as much as possibly they could, to avoid him, as though they smelt something very disagreeable; and so indeed it proved to them, for the very next day many of them fell sick, and died in a few days."

The Doctor advises the building several small huts, with faggots and broom, at a distance from each other, and that a man there attend the sick cows, remote from, and never to come near the well.

I should not have appeared a third time in your Magazine (the Gentleman's) with any advice relating to the cattle, if I had not been importuned to it by several gentlemen, and others, whom I greatly regard, as a service I ought not to deny the public at a time when, through the carelessness of the owners, and the troublesome and improper schemes proposed, the distemper spreads so fast.

And, indeed, it is thought of great importance that the plainest directions should be given, not only for the cure, but, if possible, for the prevention, of this fatal disease: I therefore send you the subsequent scheme, which directs to so easy and so cheap a method, that I hope it will be generally pursued, as in some instances it has been, with such success, that drooping cattle

(whose milk began to decrease) have been recovered to their health and milk in a few days, and have been found better than ordinary after it; and I must take the liberty to say, that if the owners, to spare themselves so little trouble and so inconsiderable an expense, slight it, when the symptoms begin to appear in the herd, they must in a great measure charge the destruction of their cattle upon themselves, and will be accountable, not only to their families, but to the public, for the detriment which may be sustained by their folly and obstinacy.

Whenever the distemper is near any sound cattle, if any of them begin to droop, so that there is the least suspicion that they are going to fall, let them be immediately taken up, made clean, and kept dry. The first day let three quarts of blood be taken away—the next day three quarts more—and then let two quarts be repeated every third day for four times more. Yet some allowance is to be made for the size of the cow, and the strength of its constitution, in determining the quantity of blood to be taken away, which may in a large and full-fed cow be more than three quarts, in a small and lean one less.

During this time, let the beast be drenched every day with three ounces of saltpetre, dissolved in three quarts of water, to which must be added at least six score drops (or three drachms indeed to a large cow) of oil of vitriol; but observe this quantity is to be given at twice, two doses being ordered together to save the trouble of mixing. If it should so happen that the oil of vitriol cannot immediately be procured, half a pint of vinegar (though I should rather prefer verjuice, if perfectly good) may suffice in its stead.

Let hot mashes be given them twice or thrice in a day, and let them drink frequently of water gruel moderately soured with verjuice or vinegar, which, as they are extremely thirsty, they will probably be glad to drink; but if any should happen to refuse it, let them drink as much as they will of water-gruel, or warm water alone, which should be offered them several times in a day.

Though it is probable, that if the cattle be taken in time, a great alteration for the better may appear in two or three days, and particularly that their milk (if it should have begun to decrease) may return plentifully, yet it will be advisable to go on in this method for about a fortnight; and great stress must be laid on drinking largely of warm gruel, either with verjuice (if the beast will do it) or alone.

If during this time two very large seasons, or rowels, be made through the dewlap, and if they be kept running for two or three months, it will be an additional security: but these being made late in the distemper, can be of no use, because it grows desperate before they can take effect, or begin to run.

I would observe farther, that if the owners can contrive to keep these cattle up till the latter end of March or beginning of April, it would be advisable; but if they cannot possibly do it, let great caution be used, when they are first turned out, which must be done by degrees, and on fine days.

The reader will observe, that all these directions relate to the methods to be used at first, for when the distemper is come to a height, little is to be expected from anything that can be done, and therefore the Privy Council have thought proper to direct that they should be killed—and it will be then the interest of the owners exactly to follow those directions.

I think it my duty to caution against trusting to receipts, recommended under the boasting title of specifics, and often composed of contradictory materials. It is strange so much should be expected from them in any disease, considering how much depends upon different times and circumstances, which must require different applications. I must once more beg leave to remind the public, that if my directions be not punctually obeyed, or if any other supposed remedy be added to what I have advised, the trial is not fairly made, and I cannot be at all answerable for the consequences.

I am, Sir, yours, &c.

Northampton, Jan. 15, 1747.

J. S.

THE MURRAIN.

(To the Editor of the Dumfries-shire and Galloway Herald.)

SIR,—I take the liberty to copy a letter addressed to Francis, late Duke of Bedford, by the celebrated Professor Coleman, of the Veterinary College, London; which, if you choose to insert in your valuable paper, may be of great benefit to the farmers of this country at the present juncture, when their stock of valuable cattle is threatened with a noxious distemper.

Yours, &c.

A SEPTUAGENARIAN.

"Veterinary College, St. Pancras, London,
November 3d, 1797.

"My Lord Duke,—I had the honour of your Grace's letter of the 30th ult., requesting my opinion on the prevention and cure of the distemper now so prevalent in some counties in England. In regard to prevention, I recommend every homestead to have, at least, one bushel of salt (rock salt is best) in a convenient place in a trough or tub, where the cattle or sheep could have easy access to it at all times. Having once tasted it, they will greedily return for it. Horses should have always a piece of rock salt in their mangers. In regard to the cure of any that are already infected, I recommend a saline drench, composed of at least eight ounces of Epsom salts, occasionally, if their costiveness require it. They should not be confined to the byres; the open air is preferable.—I have the honour to be, my Lord Duke, your Grace's most grateful servant,

(Signed)

"ED. COLEMAN."

TO THE STEWARDS ELECT OF THE SMITHFIELD CLUB.

GENTLEMEN,—Having witnessed at the last Smithfield Show the great inconveniences which artists are obliged to undergo, in making portraits of the animals exhibited there,—I take the liberty of calling your attention to the subject, with the hope that, at a future show, some better arrangements may be made with reference to their accommodation. The employers of that class of the community on whose behalf I address you, would, doubtless, desire to have faithful portraits of their animals; but with the annoyances and want of respect to which artists are subjected, how is it to be effected? It operates too disadvantageously for the public, inasmuch as very incorrect and hasty execution must be the consequence, and that portion of it which is guided by pictorial representations, forms a wrong estimate of the true proportion and character of the animals.

The arrangements of the yard are so complete in other respects, it is to be regretted that some accommodation more favourable to artists is not devised. It might be necessary, should more space and better protection be afforded them, that some sanction or authority from the committee be required before an artist is allowed to proceed with any work, and even the number might be limited of those allowed to paint them. This might stimulate the more pains-taking in the artists employed, and the public would be relieved of much of the untrue and unmeaning representations so frequently foisted upon it. A more correct delineation of the prize animals being the probable result, it might tend ultimately to diffuse juster notions of true form and proportion, and afford a surer guidance to those whom pleasure or interest induce to make such objects their study.—I am, gentlemen, your obedient humble servant,

E. F. WELLES.

Hereford, Dec. 21, 1840.

REMOVAL OF BASTARD CHILDREN BORN OF SCOTCH OR IRISH PARENTS.

"Poor Law Commissioners' Office,
Somerset-house.

"Sir,—The Poor Law Commissioners have had under their consideration your inquiry upon the subject of the settlement and removal of illegitimate children born since the passing of the Poor Law Amendment Act, of Irish or Scotch parents not having gained any legal settlement in England or Wales.

"Before the passing of the Poor Law Amendment Act, it was decided when Scotch and Irish women had gained no settlement, their bastards born in England acquired a settlement by birth where born, and were therefore not removable with their mothers to Ireland or Scotland. (See *R. v. Bennett and Broughton*, cited by Mr. Justice Patteson in *R. v. Milc-and Old Town*.)

"This still remains the law, unless the law be altered by the 71st section of the Poor Law Amendment Act (4th and 5th William IV., cap. 76.) which enacts 'That every child which shall be born a bastard after the passing of the act shall have and follow the settlement of the mother.'

"Where the mother has a settlement, or acquires one, this settlement supersedes the settlement of bastards by birth in a parish. But there is no repeal of the settlement by birth in the class of cases in which the mother has not and does not acquire a settlement.

"It appears to the commissioners to be quite evident that this settlement has effect only in cases where the mother has, or acquires, a settlement, which the child can have or follow. Where the mother has no settlement, there is no settlement for the child to have or follow under the provision.

"The commissioners are of opinion that in the cases of unsettled Irish or Scotch mothers of bastard children, the 71st section of the Poor Law Amendment Act has no operation; and they are further of opinion that such children are settled where born, as before the Poor Law Amendment Act, and therefore are not removable to Ireland or Scotland with their mothers.

"Signed, by order of the board,

"E. CHADWICK, Secretary.

"Mr. James Jopp, relieving officer of the City of London union, 35, Cannon-street."

TOLL UPON LIME.—The following statement has been extensively circulated:—"By an act of last session it is declared that nothing in the 3d of George IV., cap. 126, shall enable any collectors to take toll for horses carrying lime for the improvement of land." This, which is only a portion of the enactment, is calculated to convey an erroneous notion of the present state of the law, the fact being that in some cases toll may still be taken for lime; at least such appears to be the case, although there is such ambiguity as to have puzzled the interpreters. The words of the statute are, "that nothing in the said General Turnpike Act shall extend, or be construed to extend, to enable any collector or collectors of tolls under the authority of any local act or acts, to take or demand any toll for horses and carriages employed in carrying or conveying lime upon any turnpike road for the improvement of land, when carriages or horses laden with lime for the improvement of land are exempted from the payment of toll by any such local act or acts now in force, or which were exempted from the payment of toll by any local act or acts in force at the time of the passing of the said recited act of the 3d year of the reign of his late Majesty King George IV., but since repealed." The meaning of the act of last session seems to extend no further than, that where lime has been locally exempted from toll the exemption is to continue. It appears that the matter is *sub-judice*, for a notice has been given that at the next meeting of the Hereford turnpike trust it will be proposed that no toll be taken for lime hauled for manure until the Court of Exchequer has decided that it is legal to take it.—*Hereford Journal*.

A SKETCH OF THE AGRICULTURE OF FIFESHIRE.

BY MR. GEORGE BUIST, BOMBAY.

(From the *Quarterly Journal of Agriculture*.)

The area of the county of Fife is understood to contain 209,226 acres of cultivated land, and 89,664 of uncultivated. It forms an irregular peninsula of forty miles in length and eighteen miles in breadth, bounded on the north and south by the ample estuaries of the Tay and Forth, and on the east by the German Ocean. Its surface is irregular, a border of trap hills extending over an area of about 60,000 acres over its northern limit; whereas a succession of slopes or elevations of less or greater altitude with broad intervening valleys, extending from east to west, fill up the remainder of the county. The average altitude of the most prominent of the hills may be about 600 feet, a few, and but a few, exceed 1000, while the east and west Lomond hills rise to an altitude of 1400 feet and 1700 feet respectively. The rocks in the first-mentioned division of the county, as well as of nearly all the hills, consist of trap; the valley of Stratheden is of old red sandstone, while the whole of the more level portions of the south rest on rocks of the coal-formation. The soils are extremely various, and generally consist of portions of the subsoil properly so called, changed in its texture and properties by long continued cultivation, or of comminuted portions of the trap-rocks adjoining. The subsoils, again, consist of extensive beds of sand or water-worn gravel, generally overlaid, supported by, or commingled with, a hard stony variety of clay called "*till*." In 1800 the county was divided amongst no fewer than 1200 proprietors, of whom about 400 were entitled to be Commissioners of Supply, the value of a large proportion of the estates was then from 400*l.* to 3000*l.* per annum. From 3000*l.* to 6000*l.* there are only a few, and only one above 8000*l.** The county of Fife was, in the reign of Alexander III., valued at 134*l.* 10*s.* Scots annual rent. In 1650, a second valuation took place, which still continues to be held valid for the regulation of cess, land-tax, and other burdens, at a rental of 362,584*l.* 7*s.* 5*d.* Scots. This is greatly above the average of the adjoining counties, and is above one-tenth the value of the whole of Scotland put together. The real rent of many counties exceeds in pounds sterling the nominal valuation in Scots money, whereas in Fife the former is more than one-third below the latter, being calculated in 1800 at 212,000*l.*† This indicates the early period at which Fife had arrived at a high degree of agricultural celebrity, and probably accounts for the very prominent place which it presently holds in this way in Scotland. The geographical form of the county, of which no point is ten miles from some sea-port, so that the utmost facilities for the import of manure and export of agricultural produce is thereby afforded, together with its geological condition, which afford abundance of lime and coal on every hand, is exceedingly favourable in a physical point of view for the advancement of agriculture. If thus happily situated from natural causes, for the promotion of these ends, Fife is equally fortunate in the same way from the distribution of its landed property. There is no district in Scotland where proprietors, whose

rental varies from 100*l.* to 1000*l.* a-year in such numbers farm their own estates, or farm along with them a portion of rented land, or where the possessors of more ample grounds keep a portion of these in their own hands, such as to constitute them practical farmers in the most genuine sense of the term. By this means a class of individuals is generated, which, happily, unites the higher orders of the aristocracy with the tenantry and yeomanry, tending to promote a friendly intercourse and good understanding betwixt them, elevating, on the one hand, the tone of more ordinary agricultural society; on the other, tending to imbue the more extensive possessors of the soil with the knowledge, feelings, and spirit of cultivators.

To proceed with a narrative of the improvements in Fifeshire, we may begin with agricultural implements.

The *Iron Plough* of the best construction is almost in universal use throughout the county. It is made with consummate elegance by local blacksmiths and agricultural implement-makers. The wooden plough, also of the best form and structure, in some parts still prevails. It is, in all essential particulars, similar to the iron one, by which, however, it is rapidly being displaced.

The *Harrow*—the heavy harrow, called a brake, used, when Dr. Thompson wrote in 1800,* for breaking stiff, and loosening and tearing up grass-roots and quick weeds, has gone entirely into disuse. "The construction of this is much the same with that of the common harrow, only much larger and heavier, and furnished with a greater number of teeth. Sometimes it consists of two parts, which move on iron joints; constructed in this manner, the whole harrow will be able to touch the ground, and no part of it pass without doing execution." Ordinary harrows are now generally made of iron. There is nothing remarkable in their form or structure. The lozen-shape, which seems preferable to the rectangular harrow, though occasionally employed, has not as yet come into general use. A small light harrow is occasionally used for covering the smaller seeds, such as those of clovers or of grasses. The potato-harrow, lately introduced into Perthshire, is sometimes, though not extensively, employed.

The *Grubber* is the most popular of our recently introduced agricultural implements. It is the invention of Mr. James Finlayson, a native of Ayrshire, who had it patented for England alone. In the year 1825, it was introduced into Fifeshire by James Blyth Fernie, Esq., of Kilmux. The original Finlayson required four horses to draw it. A great improvement was soon after this made upon it by Mr. J. Thallon, blacksmith, Smithy-green, near Kenno way, who altered its construction, so as to increase its efficacy, and lightened it so that it may now be drawn by two horses instead of four. In this improved form it is now to be found in almost every farm in the county.

The *Horse-hoe* or drill-harrow, which is used in Fifeshire, exists in a vast variety of forms. Of late a great improvement in the form of its teeth has been introduced, by having them bent, and made to project obliquely, so as to bring the root-weeds to the surface on Finlayson's principle.

The *Swingle-trees*, by which all these implements are dragged forward by the horse, are now mostly made of iron. The form of this iron swingle-tree is in many cases similar to that of the old wooden one, now getting into disuse. It is hollow in the core, and formed by a flat piece of iron, bent

* Thompson's Survey, &c.

† Thompson's Agricultural Survey of Fife, 1800. Vol. i. of the *Farmer's Magazine*, 1800.

* Agricultural Survey, p. 126.

round and well-joined. Some iron swingle-trees consist of a single flat bar. These, though more easily made than the hollow ones, have neither the same strength nor lightness. Wooden swingle-trees, though cheap at first, are in the long-run so uneconomical, that they are becoming extinct.

Rollers, which used formerly to be made of stone or of wood, are now manufactured chiefly of cast-iron. The length of the cylinder of the roller is generally about 5 feet; its diameter about 24 inches; it is always divided into two, sometimes into three, pieces for the convenience of turning.

Machines for Sowing Corn are scarcely at all in use in Fife, and those for sowing grass-seeds, though occasionally found, are by no means prevalent. The liabilities of both to go wrong, and general imperfections attached to them, have made them to be set aside in many cases where they have once been tried, and prevented their general introduction, smart farm-servants being considered the best sowing machines that can be employed.

The *Turnip-barrow* is now universally employed and is in Fife very skilfully constructed. It admits of a very considerable variety of forms.* From the universality with which bone-dust is applied for turnip manure, a bone-dust sowing apparatus now always forms a part of the turnip barrow. Plumping machines for dropping in bone dust and turnip seed in little parcels, at intervals of six inches or so from each other, are occasionally in use, but, though tending considerably to economise bone manure, are not in Fife favourite implements. No other sowing machines are prevalent among us.

The *Presser*, an implement which should have been described along with the rollers, is chiefly in use for preparing the softer soils for the reception of wheat, and is to be found on farms on the slopes inclining to the Forth.

The *Levelling-bar* is chiefly necessary where considerable transformations on the large scale have been making on the surface of the ground. Where this is the case, it is always to be found: where otherwise it is not required.

Implements for reaping. The common toothed hook, which needs not here to be described, was for a long time in Fife the sole implement for reaping. This has now in a considerable measure given place to scythes or smooth-edged hooks, which, however, are much greater favourites with the work-people than their employers;—it being believed by the latter that, unless by very careful management, a considerable quantity of shake, and much irregularity in the lay of the grain, is occasioned by them.

The mode of bargaining with the reapers in Fife, unlike that which prevails on the north of the Tay, is to engage them on days' wages; or much more generally, to agree with them at a certain rate for the harvest. Besides these wages

* The drill-barrow for sowing turnips and other small seeds, is simple and of easy management. One kind requires only one man, and another two to manage it. Some years ago, a kind of drill-machine for turnip was in use, which was drawn by a horse run upon two wheels which turned the seed box—had a share for making the rut or furrow, and dragged a small barrow behind for covering the seed. But this is now less commonly used, and has given way to others more simple, and equally answerable.—Thompson, p. 108 (ann. 1800).

certain allowances of bread, beer, and occasionally of potatoes and milk, are made to them. Among some disadvantages attendant on this, as compared with the *threshing* system, is the irregularity and magnitude of the sheafs, which, unless when carefully attended to by the binder, sometimes attain the absurd dimensions of from four to five feet in circumference, instead of three feet, which they ought never to exceed. This saves both the reaper and binder considerable trouble, but produces a sheaf very inconvenient for handling, afterwards very difficult to win in the field, and apt to beat in the stack.

The ordinary *Scythe* has of late begun to be extensively employed; and as the workmen become expert in its use, proving both a convenient and economical, and an expeditious implement. Dr. Monmouth's cradle-scythe still more recently has become a favourite, and were as much systematic care taken to perfect the workmen in its use, as is expended in instructing them in ploughing, sowing, and stack-building, and the other more important operations in agriculture, and in properly drilling the hands required for gathering the corn from the swath, it seems probable that, in a few years, this implement may become universal in harvest operations.

The *Reaping-Machine* on Mr. Bell's or the clipping principle, has only been successfully employed to any extent on two farms in the county. On the farm of Dunbog on the Earl of Zetland's estate, it has been applied by Mr. Moodie since 1828, with the most brilliant and unfeeling success. This gentleman has cut with it every season from seventy to ninety acres of corn under nearly every variety of circumstances, and in the course of these ten years an area of about 800 acres altogether has been cut by him. Mr. Hain of Claremount is the only other farmer who has introduced with success Mr. Bell's machine into his harvest field. He has employed it since 1833. Two or three other machines of the same construction have been tried in other parts of the county, but not proceeded with.

Horse-rakes are very generally used, even after the most careful reaping. This implement admits of no great variety of form. The ordinary horse-rakes, from the flatness of our ridges, are often of great magnitude and sweep. The canting-over, or American form of rake, is one of the most prevalent varieties.

Carts. The prevailing form of cart is the ordinary coup or box cart. This, occasionally fitted up with additional movable or slip sides, which, though now general over Scotland, were, about thirty years ago, almost peculiar to Fife. The frame or tops, prevalent to the north of the Tay, by which a coup cart is so speedily and so conveniently converted into a corn one, is but little used here, a separate corn cart, which admits of the load being placed low, being considered greatly preferable. A vastly improved variety of this cart was, a few years since, invented by a farm-servant in Clackmannanshire. By this, the centre of gravity of the load is raised no higher than the level of the top of the wheel. This kind of corn cart is cheap, strong, and peculiarly convenient for rough roads and uneven ground, and is getting extensively into use.

Threshing-Machines seem to have been very early introduced, after their invention, into Fife-shire. Before 1800, that is within fourteen years of their invention, we find it stated by Dr. Thomson, that, in almost every parish, they had been

erected to the extent of seven or eight in single parishes, and to the amount of nearly 300 within the county; they now exist every where, so that there is not probably a farm in Fife, above the size of 50 acres, which is without them. Though the principle be the same as at first, the details are immensely improved,—an additional shaker having been added. Lifters, or an endless cloth called “a brock machine,” is employed to elevate the imperfectly thrashed “brock” from the lower to the upper part of the mill, to be subjected once more to the action of the drum. Other improvements in detail have taken place which could only be made intelligible in description by the use of numerous drawings. A machine for *humbling* barley has been attached to many mills. It consists of an upright shaft with horizontal iron arms, which revolve with great rapidity, and strike against the grain as it passes through horizontal tiers of perforated iron plates placed parallel to the arms of the machine. It dresses the most refractory barley to admiration, and without damaging the grain. Additional pairs of fanners, driven by the mill, supply themselves with grain, and, in several mills the dressing process is entirely completed by the machine, so that it comes out sifted and cleaned ready for the stock market.

The best mills of this sort are at Kilmux and Fosterton. The greatest improvement recently made on machine thrashing in Fifeshire, is the introduction of steam as a motive power. Since 1824, no fewer than twenty-six steam engines have been constructed for this purpose in the eastern part of Fifeshire, without taking into account what have been put up in the west. The first who applied steam-power to thrashing machines in this county was Mr. Haig of Seggie, who possessing an engine of 25 horse power for distillery purposes, made it to drive a thrashing-mill about 10 horse power. The following is a list of 27 mills driven by steam in this neighbourhood, with the date of their erection and name of the farmer, and designation of the estate where they are to be found.

Farms.	Farmer.	Estate.	Date.
Airdry	....	Airdry	....
Cafindilly	Walker	Crawford	1835
Clintry	Watt	Raith	1835
Craigie	Thomson	Balcarres	1834
Carnbee	Aitkin	Balcaskie	1835
Crail	Dr. Bonthron	Erskine	....
Balcarres	Lindsay	Balcarres	1838
Balneil	Bogie	....	1835
Balgonie	Young	Balgonie	....
Do.	Do.	Do.	....
Blebo	Tullis	Blebo	1838
Drumcarro	Yool	....	1838
Falklandwood	Dudgeon	Nuthill	1824
Foodie	Wilson	Foodie	1834
Fosterton	Hutchison	Raith	1836
Kincapple	Haig	Tarvit	1836
Kilgour	Dunn	Nuthill	1826
Kilmux	Fernie	Kilmux	1834
Kinninmonth	Paterson	....	1836
Kingsdale	Ballingall	Kingsdale	1836
Kirkaldy	Douglas	Tarvit	1830
Lordscairnie	Tullis	Crawford	1834
Methilhill	Haig	Wemyss	1830
Newton	Russel	Dundass	1833
Pilmure	Balfour	Wemyss	1833
Seggie	Haig	Tarvit	1805
Treaton	Ballingall	....	1832

These engines are of the simplest construction, without a walking-beam or parallel motion. The crank is commonly placed high over the cylinder, and connected with the piston-rod by a single connecting-rod, the lower end of which is furnished with wheel-guides. They are commonly from four to six horse power, and can be had from 20 to 25 lb. a horse power. High-pressure and condensing engines are about equally abundant. The engines themselves are well managed, and so admirably kept in point of order by the farm servants, that the present writer, who has had considerable experience in such matters, has never seen the condition of the Fife thrashing mill engine surpassed by those of the most crack London steam ships or Scotch spinning mills.

To the thrashing-mill is occasionally attached, as at Kilmux, rollers for bruising grain, and a straw-cutting machine; and it were well that these appendages were of more frequent occurrence amongst us.

Draining has been long vigorously practised in Fife. Where large masses of water or of marsh land were to be dried, the cuttings are often of stupendous magnitude. The chief operations of this sort have been those of Loch Leven, at Loch Ore, at Lochty Moss, and Rossie Moss. Some of these cuttings are twenty feet deep and forty feet wide. While Elkington and Anderson's systems of draining prevailed, operations on their plan were carried on to a great extent. Since the introduction of Smith's furrow drain and deep-ploughing system, the farmers have shown themselves fully alive to its merits, and may challenge Scotland for the spirit and extent with which they have proceeded. For many years past furrow-drains have been put in, in Fife, to the extent of probably not less than 500 miles a year. This, at a cost of £15 to the mile, would amount to £7,500, or to a capital permanently sunk in draining of £150,000. At a competition, where a prize was offered for the greatest amount of furrow-drains executed within a given period, it appeared that single competitors were draining, on their own account, at the rate of from sixteen to twenty miles a year, and that one farmer had put no fewer than ten miles of drain into a single field. The expense of these operations is, for the most part, borne by the tenant alone, though in many cases the landlord cuts the drains and the tenant fills them. In all cases Smith's system is strictly adhered to, stone drains being much the most prevalent. Where the ground is injured by excess of these, the drains are cut wider than is otherwise necessary, for the sake of burying the stones. Where stones are scarce or difficult to come by, tile drains are employed. Few of our soils are such as to require that these should have sole-plates.* About the year 1830, a Fife farmer put into his ground no fewer than 320,000 tiles in the space of two years, each tile being fourteen inches long, which in all would amount to about forty-seven miles of tile-drains.† Along with the tile-draining the subsoil and trench ploughing of the Deanston system also prevail to their full extent.

* We deprecate the neglect of sole-tiles in every case. The clay that may appear hard enough to bear tiles when newly cut, may soon soften as much after the water in the drain has remained a short time upon it, as to allow the sinking of the tiles into it. Let the Duke of Portland's experience in Ayrshire operate as a warning to all tile-drainers against neglecting to use sole-tiles.—EDITOR.

† Mr. Hay, of Seggie.

The mineral manures used in Fife are lime and marl; the former of these is worked and burned at above twenty different quarries, in various parts of the county. It is very extensively used in agriculture, though farmers of late prefer *feeding to stimulating* manures. The following are the principal places at which it is presently worked: Forther, Pittlessie, Cultra, Annfield, West Lomandlaw, Toadestones, East Lomandlaw, Hanginmyre, The Bishop-hill, Benarty, Lesslie, Charleston, Duloch, Burntisland, Innertiel Tyrie, Chapel, Thomasford, Teasses, Griegston, Winthack, Dumbarney, Cornceres, Sypsis, Kingsbarns.

Shell-marl used to be extensively used as a manure in Fifeshire, but has of late got into disuse. It is still extensively employed in Forfarshire. It is found at the following places, in beds varying from two to eight feet in thickness, and covering, so far as can be ascertained or guessed at the area, as assigned beneath:

Lundymoss	10	acres.
Duriemoss	6	..
Near Inchrye	5	..
Near Raith	1	..
Mugdrum	1	..
Near Balbirnie	1	..
Pitlair	3	..
Cash-loch	1	..
Stravithy	3	..
Bowmoss	4	..
Rossie Loch	4	..
Rossie Loch (2nd deposit)	2	..
Berrie-hill	1	..
Kinghorn Loch	10	..
Lordscairnie	2	..

With various other lesser deposits not examined; the whole probably amounting to nearly 100 acres.

Sea-weed may be viewed as a mineral-manure, as the alkali and salts which it contains chiefly affect the soil. Along the south and east coast of Fife, where farms skirt the shore, sea-ware in a great measure takes the place of farm-yard manure, which is occasionally carted inland, by the permission of the proprietors, to less favoured localities on the same estate. Sixteen loads of sea-weed are reckoned adequate manuring for an acre of ground, equal to about twenty loads of farm-yard manure. It costs from 1s. to 1s. 2d. in collecting and carting. It acts with great effect on hay-stubble cut early, and often yields an admirable aftermath. Farms which can command sea-weed give a rent of 10s. more an acre than others of similar quality and position without this privilege. The sea-weed used consists of the common varieties of fuci, algæ and confervæ, which prevail upon our shores. A green, delicate variety of weeds, found alone in protected situations in the estuaries of our rivers, is used in the upper parts of the Forth, but still more especially so in the Eden. Mr. Meldrum of Bloomhill, near St. Andrews, besides collecting the weed on his own shores, rents that on those of his neighbours. He frequently applies from 300 to 400 cart-loads in a single year, and reckons ten cart-loads good and fifteen heavy manuring. When laid on in winter, and ploughed into the furrow-ground, it produces a fine pulverizing effect. With this alone a wheat crop of six quarters an acre has been produced, with a heavy crop of beans the year after, without additional dung. Sand, gravel, and clay, which in many parts of Fife are laid in great quantities on the surface of the ground, are rather to be considered as alter-

atives than as manures.* Saltpetre, sea-salt, prepared kelp, bleachfield refuse, gas-work lime, and animalized carbon, have all at different times been employed to a greater or lesser extent, if not so considerably as to affect the character of the agriculture of the county. Their popularity is not, however, at present on the advance.

Farm-yard manure is here treated with peculiar skill and care. The court-yards of most of our farm-steadings have water-spouts all round the eaves of the buildings, so as to prevent the rain which falls upon the roofs from injuring the manure. When carted to the field, the dunghills are very carefully made up, so as to expose them as little as possible to injury from the weather. A plan worthy of universal adaptation has been introduced by Mr. Balfour, of Pilmure, that of covering over his field dunghills with earth, laid spadeful thick, as if they were potato heaps. This covering, which the workmen put on when they could not be otherwise profitably employed, completely prevents the action of the wind and rain, and intercepts and absorbs those gaseous exhalations which would otherwise escape, and is itself converted by them into an excellent earthy compost. The practice of soiling cattle in the yard for the sake of the additional manure produced by them, is prevented from being so extensively resorted to as it otherways would be, from the cattle seeming less thriving when penned up in summer than when permitted to rove at large in closed grass fields. The extent to which sheep pasturing has recently been introduced, tends greatly to meliorate the soil, whether during the grazing or turnip-feeding season. Green turnip tops are occasionally employed as a manure. If cut off in autumn, and ploughed in immediately afterwards, and before they have had time to fade, they act for one season over the area on which they have grown equal to ten tons per acre of the best farm-yard manure, if the turnip crop be a fair average. They form very poor feeding for cattle, and are apt to scour them. Large white turnips, such as are sown for autumn use, afford the largest amount of leaf. At most of our distilleries, the drippings of the court-yard are collected in a well, and pumped off as liquid manure. As these are not required by the distillers themselves, in consequence of the immense command of ordinary manure they possess, they are sold at so much the barrel to the farmers in the neighbourhood. Bonedust is now universally employed as a turnip-manure. I am not aware of any peculiarity in the mode of using it in Fife, as compared with the other counties of Scotland. It has been tried as a top-dressing for grass, and a manure for other crops as well as turnips, but not to any considerable extent. Rapecake is at present coming extensively into use as a manure, and is just now a favourite one, it is chiefly applied to grass.

The greatest attention has been long paid to the culture of live stock in the county of Fife. The farm-horses are of a strong, active, not very large breed. The quantity of corn allowed them has of late been considerably increased. Potatoes and corn are often mixed together, and steamed along with Swedes or yellow turnips, and make an excellent feed. These substances are also often given raw, separately, and without preparation. On many farms, horse corn is

* This application is now very prevalent where the soil is much too stiff or too open; it is extremely important.

bruised with rollers. Straw-cutters are getting into extensive use. The turnip-slicer is also employed, not only for cutting turnips for horses and cattle, but occasionally for slicing potatoes and turnips for sheep. In this last case, it is mounted on a carriage like a wheelbarrow, and is accompanied with large troughs, to prevent the cut vegetables from falling or lying on the ground.

The horses used for riding or gig harness (for few of the farmers in Fifeshire who have families are without some springed vehicles for their accommodation), are generally hardy, well formed half or three-quarter bred cattle. The ranks of a yeomanry regiment lately disbanded were said to have exhibited a greater proportion of well-mounted soldier-looking troopers than any other district in Scotland could have produced. Very few thoroughbred horses are kept for their own use by farmers in the county, though those which are raised by them, or are transiently in their hands for the purposes of sale, are occasionally used by them on the road, turf, or field.

The average allowance over all the county of force employed, is one pair of horses for every fifty acres of arable ground. This is considered a ploughgate of land. Statute labour road-money is charged accordingly. Though this is the average, so greatly does the nature of the ground affect it, that, in the soft black lands in Stratheden, one pair of horses are quite adequate for the cultivation of seventy acres, while on the stiff wheat soils near Fifeness, one pair is required for every thirty acres.

There are said to have been originally two breeds of oxen peculiar to Fife,—“*the Fife runt*” and the Falkland breed. The former of these, a strong, coarse, hardy variety of ox, is understood to have been indigenous, and to have been well adapted for the cold, swampy condition of the county, before it was meliorated by agricultural improvement. This seems to have been the only variety of cattle possessed by us down to the accession of James VI. to the English Crown. This monarch, more remarkable for classical acquirement than financial prudence, had, during his residence at Falkland, come under obligations to many of the Fife landed gentry, the most convenient mode for discharging which he found to be sending them presents of improved breeds of live stock from his new dominions. This is the present Fife breed, before which the poor aboriginal stock speedily gave way. The oxen throughout the county, in general, belong either to this race in a pure state, or crossed with the Teeswater. Improved short-horns are very prevalent, but less so than the above in this district. It is a singular instance of the spirit and determination of Fifeshire agriculturists, that, in this case, they have withstood the judgment of the Highland Society, whose fiat, in most cases absolute and irresistible, has been issued against Fife stock as unworthy of patronage, and unable to compete with the improved short-horned breeds. In evidence that their position is not untenable, the Fife farmers have produced specimens of the pure native breed, which have again and again taken the premium offered for the best ox, of any breed whatever, against all comers, at the Society's great annual show.

Fife possesses a peculiar native breed of sheep as well as of oxen, but these, unlike the cattle, seemed to have derived no benefit from the royal favour. They are white-faced, and somewhat

larger in size than Highland sheep. They are very hardy, but not distinguished for either the quantity or quality of their wool or flesh. They are said to have been first known in an extensive tract of sandy downs in the north-east of the county called the Tents-moors. They are chiefly patronised by a few active and skilful farmers of the old school, whose admiration of the things of other years indisposes them for the acceptance of the new races of sheep. The black-faced or Highland breed in Fife, as in every other quarter of Scotland, was, within these forty years, almost the only one known to us besides the aboriginal white-faced, and is now rapidly falling into disuse. The races which have taken its place are the Cheviot, the Leicester, and the cross-breed betwixt the two. A cross betwixt the Cheviot and black-faced is sometimes found, but is not a favourite. The previous cross-breed is much the most general, many beautiful flocks of them prevailing throughout the county. The pure Leicester, along the south coast particularly, is rapidly coming into use. The farmers take the utmost care to have tups and ewes of the first quality: they themselves visit the most celebrated English and Scotch border-markets to obtain a breeding stock, and, being eminent judges, hesitate at no price, provided they can get animals to their mind. I am not aware of any Southdowns existing in the county. The following statement from Dr. Thomson will shew how entirely the views of farmers have changed on this point since the year 1800.

“Anciently sheep formed a considerable part of the live-stock of this county. Every farmer almost kept a quantity, which fed with his cows in summer, and in winter ranged in common over the whole country. But when the system of husbandry came to be changed; when the culture of wheat became more general; clover and rye-grass more commonly sown, and the lands at the same time, continuing open and exposed, or the thorn fences young, and therefore ready to be checked in their growth, or entirely destroyed by the sheep (for the wool of sheep is fatal to thorns), their numbers greatly decreased, and now few, comparatively speaking, remain. There are no flocks, perhaps, consisting of above 300 or 400 in the possession of one man; and few nearly so numerous. These are chiefly to be met with on the Lomond Hills, the high grounds on the north, on Eden's Muir; and in the Downs, in the parish of Leuchars, commonly called the Tents Moors. Besides, many of the gentlemen, and some of the principal farmers, keep a few principally for the use of their own families; and some who have a taste for that kind of stock, and convenience for feeding them, keep more, and what they do not use they sell to the butcher. Some gentleman-farmers and others follow the practice of purchasing annually in the spring a few scores of great ewes, or ewes with young, for the most of the black-faced kind. These they lay on good pasture; the lambs they dispose of, in the course of the summer, to the butcher, and the ewes at the end of the season.”—(Survey of Fife).

So far are farmers now from placing or restricting sheep to hill-grounds and wild-pastures, that the districts above spoken of, with the exception of the Tente Moors, where water is deficient, are occupied entirely by oxen and young horses; whereas the invaluable manuring power, and other conditions of the sheep, make them prevail over the finest and richest of our cultivated lands.

It is not necessary to speak in detail of the other varieties of live stock to be found in Fife, because the value and amount of these is too inconsiderable to be taken into account in any general description of the agriculture of this district.

The farm-steadings lately erected are of the greatest magnificence and magnitude; the finest in Fife is that of Mr. Fernie of Kilmux, which was built in 1833, and cost about £4000.* The steam-engine erected here for driving the thrashing-mill works two pair of grinding stones for making oatmeal. A drying kiln is also attached, not only for preparing the corn for the mill, but for slightly drying it, so as to make it keep readily in the granary in any quantity that may be desired. The steading at Foodie, on the estate of John Small, Esq., London, is another beautiful specimen of a complete set of farm buildings. Very many others may be pointed out in Fifeshire as examples of skill in designing, and beauty of execution. Great care is now taken in fitting up the stalls for feeding cattle. The oxen are arranged together in pairs, in each stall, as the social disposition of the animal makes them feed with more avidity in this way than singly. Apertures are in general left towards their heads that the cattle-feeder may supply them with the least possible disturbance to them. The partitions betwixt the stalls are formed from slabs of grey sandstone pavement from Forfarshire, as are also the feeding-boxes, &c. from this very convenient and durable stone. Two or more separate stables exist on all our better varieties of farm-steadings; one exclusively for the work-horses, and one for the riding-horses and horses of visitors. A third and fourth stable is occasionally found in more spacious steadings for mares with foal, for invalids, and other purposes. To go, however, into all the minutiae of an improved Fife farm-steading, with its courts, swing-gates, ash-gates, and attendant paddocks and fences, would occupy too much space, and may, if improvements go on on these as heretofore, fail to afford a picture of the condition of things a few years hence. It may be noticed of implements not directly belonging to the farm-yard, but immediately connected with agricultural produce, that great improvements have of late been generally introduced in the construction of corn-mills for grinding oats. Instead of the mill-stones being made, as was within these few years universally the case, of mill-stone grit, of the coal-formation, or large-grained compact sandstone of the old red sandstone formation, which, in a short period, were ground down into their elements, and mixed among the meal, they are now universally formed of French bhurr-stones, such as are used in ordinary flour-mills. A wire-sieve, driven by the mill itself, saves the laborious operation of sifting, which, till lately, was entirely performed by manual labour. The buildings in which the machinery is inclosed are much more spacious than formerly, and generally contain a large amount of granary accommodation, which is made available by means of pulleys and sack-lifters worked by the power which drives the mill. I am not aware of any peculiar excellency in the flour-mill of Fife over those in other parts of Scotland. Barley-mills are very prevalent in the county, but are possessed of no special peculiarity which requires to be described.

Flax-mills are nearly extinct with us, as very little indeed of that crop is cultivated. There are six or eight of them in the county altogether.

They are of the common rude and antiquated form, the flax, being first braised by three grooved rollers working into each other, and then scutched by horizontal scutching arms being swept rapidly round by an upright spindle, in which their ends are inserted. The flax, when submitted to the scutching, is held fast against an armed iron-plate by a man's hand.

Bone-grinding mills of the best construction are numerous within the county, the principal of them being at Kirkcaldy, at Leven, and at Kemback.

Circular saws for cutting up waste timber, for peling, hurdles, and other purposes, are also numerous, and are mostly driven by water. A saw-mill fitted up with frame-saws, and capable of turning out work of any kind on a large scale, exists at Leven, the property of the talented, liberal, and spirited firm of Messrs. Balfour and Company.

The length of leases allowed in Fifeshire is now almost universally restricted to a period of nineteen years. The rent is, in a great proportion of cases, made payable by the flax's prices of grain. A much more judicious system of arrangement, in reference to rotation, than that which formerly obtained, has recently been introduced. The tenant is now left at liberty to treat his ground as he may think fit during the whole of the earlier part of his lease, so as to give full scope for the employment of his industry, capital, and skill. He is, towards the closing years of his occupancy, bound merely to such a system as may prevent him from scourging the ground, so as to protect the interests of the proprietor. From what has already been said, it will be expected that the very happiest condition in the relations of landlord and tenant should exist in Fifeshire. The proprietors themselves, being mostly resident, and skilled in the practice of agriculture, can adequately appreciate the exertions and merits of the farmer, and sympathize with his tastes, habits, and pursuits. The houses of the farmers in Fifeshire are generally handsome, and handsomely furnished, and shew, from the condition of the library, drawing-room, and cellar, that the Fife farmer is neither ignorant of, nor excluded from, the more elevated sources of intellectual, sentimental, or social enjoyment. Amongst the proprietors in Fifeshire who feel peculiar pride and gratification in seeing their tenantry and cottagers comfortably housed and accommodated, the Earl of Leven and Melville, Lord William Douglass, Colonel Lindsay of Balcarra, and Mr. Tyndal Bruce, may, amongst a host of others, too numerous to be named, be quoted as special examples.

There are in Fife no fewer than eight agricultural societies. The Fifeshire Agricultural Association for the protection of agriculture, founded in 1834. This society is not regularly periodical in its meetings. The Fife Agricultural Society, instituted in 1831, for the breeding of cattle, horses, and sheep: it meets annually on the last Thursday of March. The Trafalgar Agricultural Society, for the encouragement of cattle and grain produce, by sweepstakes. The Auchtermuchty Society, which meets on the first Monday of October every year. The Windygates Society, which meets in March, and was founded in 1820. The Collieston Society, which meets twice in the year. The Western District Society, commenced in 1834; and the Kinghams, instituted in 1814. The objects of all these societies, save the first, are precisely similar, and have in view the improvement of breeding, of implements, of seeds, and of gene-

* Statistical Account of the Parish of Kennoway.

ral systems of husbandry. They distribute annually many hundred pounds in the shape of sweepstakes and of premiums. It may be mentioned, as an illustration of the extent to which green crop farming prevails here, that it is not unusual to offer a prize for the best field of turnips, not less than forty acres in extent. At a show held some weeks since at Kirkcaldy, a farmer who competed with seventy acres of turnips was beaten. At these competitions, a strong ground of amicable rivalry often exists betwixt the landlords and tenants, on the results of which the former have often no great reason to plume themselves. The spirit of emulation generated by these amongst all classes of agriculturists, and amongst none more than the farm-servants themselves, upon whose diligence and care so much of the success of the competing objects depends, confers the greatest benefits on agriculture, both as an art and a science.

The Fife farmer has no secrets in his profession which he desires to keep exclusively to himself,—has no jealousy of the rivalry of others, or desire to withhold from those who may wish to possess it, the fullest information on every point connected with his profession, so that any one wishing to put to the proof the correctness of this outline of the agriculture of Fifeshire, may, by visiting any part of the county, have an opportunity of doing so.

I may conclude this paper by some computations as to the best and most economical sorts of rotation adapted to the better soils in Fifeshire, which has been furnished to me by Mr. Balfour of Falmure.

Rotation for Six Years.

Potatoes—Three ploughings and harrowings, per acre, £s	2	0
Manure, 15 tons, at 7s....	5	5
Driving manure,	0	15
Seed, 4 bolls, at 6s 6d....	1	6
Hoeing and horse-labour...	1	10
Planting and cutting.....	0	9
Gathering and dressing....	0	15
Driving to market.....	1	15
	£13	11

Wheat—One ploughing and harrowing	0	14	0
Seed, 4 bush., at 6s. 6d. ...	1	6	0
Cutting and harvesting....	0	16	0
Thrashing and driving to market	0	16	0
	3	12	0

Turnips.—Three ploughings and harrowing	2	2	0
Drilling and spreading manure	0	10	0
Manure 12 tons at 7s.....	4	3	0
Driving manure.....	0	12	0
Seed and sowing	0	5	0
Hoeing and horse-labour..	0	14	0
Driving turnips.....	1	5	0
	9	12	0

Barley.—One ploughing and harrowing	0	14	0
Seed, 5 bush., at 5s. 3d. ...	0	16	3
Cutting and harvesting....	0	16	0
Thrashing and driving to market	0	16	0
	3	2	3

Clover seed—12 lb. clover, 1 bushel rye-grass.....	0	13	0
Oats — One ploughing and harrowing	0	14	0
Seed, 6 bush., at 3s.....	0	18	0
Cutting and harvesting....	0	16	0
Thrashing and driving to market	0	14	0
	3	0	0
	£33	12	3

Produce of a Six-Years' Rotation.

Potatoes, 35 bolls of 4 cwt. per acre, at 6s. 6d.	£11	7	6
Wheat, 32 bushels, at 6s. 6d.....	10	8	0
Turnips, 25 tons, at 6s.....	7	10	0
Barley, 48 bushels, at 3s. 3d.....	6	16	6
Clover, 2 tons, at 60s.....	6	0	0
Oats, 48 bushels, at 3s.....	7	4	0
Straw of wheat	2	0	0
Do. barley	1	10	0
Do. oats	1	16	0
	£54	12	0
Deduct for labour	33	12	3

Net return for rent, taxes, and profit £20 19 9

Rotation of Five Years.

Potatoes, 1 acre — Three ploughings and harrowing £	0	14	0
Manure, 15 tons, at 7s....	1	15	0
Driving manure.....	0	5	0
Planting and cutting.....	0	1	0
Hoeing and horse-labour ..	0	10	0
Seed, 4 bolls, at 6s. 6d....	0	8	8
Gathering and dressing....	0	5	0
Driving to market.....	0	11	8
	£4	10	4
Turnips, 1 acre—Three ploughings and harrowing	1	8	0
Manure, 14 tons, at 7s.....	3	5	4
Driving manure.....	0	9	4
Drilling and spreading....	0	6	8
Seed and sowing.....	0	3	4
Hoeing and horse-labour...	0	9	4
Driving turnips.....	0	13	4
	6	15	4
Wheat, 1 acre—One ploughing and harrowing.....	0	9	4
Seed, 4 bush. at 6s. 6d. ...	0	17	4
Cutting and harvesting....	0	10	8
Thrashing and driving to market	0	10	8
	2	8	0

Barley, 1 acre—One ploughing and harrowing	0	4	8
Seed, 5 bush., at 3s. 8d....	0	5	5
Cutting and harvesting....	0	5	4
Thrashing and driving to market.....	0	5	4
	1	0	9
Clover seed—12 lb. clover, 1 bushel rye-grass.....	0	13	0
Oats, 1 acre—One ploughing and harrowing	0	14	4
Seed, 6 bushels, at 3s.	0	18	0
Cutting and harvesting....	0	16	0
Thrashing and driving to market	0	14	0
	3	2	0
	£18	9	5

K 2

Produce of a Five-Year's Rotation.

Potatoes, $\frac{1}{2}$ acre—40 bolls, at 6s. 6d.	£4	6	8
Turnips, $\frac{3}{4}$ acre—28 tons, at 6s.	6	12	0
Wheat, $\frac{3}{4}$ acre—36 bushels, at 6s. 6d.	7	16	0
Barley, $\frac{1}{2}$ acre—44 bushels at 3s. 3d.	2	7	8
Oats, 1 acre—60 bushels, at 3s.	9	0	0
Pasture, 1 acre	4	0	0
Do. do.....	3	10	0
Straw of wheat	1	10	0
Do. barley.....	0	10	4
Do. oats	2	5	0

£41 17 8

Deduct for labour..... 18 9 5

Net return for rent, taxes, and profit, £23 8 3

Rotation of Four Years.

Potatoes, $\frac{1}{2}$ acre—Three ploughings and harrowing.....	£1	1	0
Manure, 16 tons, at 7s.	2	16	0
Driving manure.....	0	8	0
Hoeing and horse-labour ..	0	15	0
Seed, 4 bolls, at 6s. 6d.	0	13	0
Planting and cutting.....	0	1	6
Gathering and dressing ..	0	7	6
Driving to market.....	0	17	6

£6 19 6

Turnips, $\frac{1}{2}$ acre—Three ploughings and harrowing.....	1	1	0
Manure, 16 tons, at 7s.	2	16	0
Drilling and spreading manure	0	5	0
Driving manure.....	0	8	0
Seed and sowing	0	2	6
Hoeing and horse-labour ..	0	7	0
Driving turnips.....	0	12	6

5 12 0

Wheat $\frac{3}{4}$ acre—One ploughing and harrowing	0	9	4
Seed, 4 bushels, at 6s. 6d.	0	17	4
Cutting and harvesting....	0	10	8
Thrashing and driving to market	0	10	8

2 8 0

Barley, $\frac{1}{2}$ acre—One ploughing and harrowing.....	0	4	8
Seed, 5 bushels, at 3s. 3d.	0	5	5
Cutting and harvesting....	0	5	4
Thrashing and driving to market	0	5	4

1 0 9

Clover seed—12lb. clover, 1 bushel rye-grass.....	0	13	0
Oats, 1 acre—One ploughing and harrowing	0	14	0
Seed, 6 bushels, at 3s.	0	18	0
Cutting and harvesting....	0	16	0
Thrashing and driving to market.....	0	14	0

3 2 0

£19 15 3

Produce of a Four-Years' Rotation.

Potatoes $\frac{1}{2}$ acre—35 bolls, 6s. 6d.	£5	13	9
Wheat, $\frac{3}{4}$ acre—32 bushels, at 6s. 6d.	6	18	8
Turnips, $\frac{1}{2}$ acre—25 tons, at 6s.	3	15	0
Barley, $\frac{1}{2}$ acre—42 bushels, at 3s. 3d.	2	5	6
Hay, 1 acre—2 tons, at 60s.	6	0	0
Oats, 1 acre—48 bushels, at 3s.	7	4	0
Straw of wheat	1	6	8
Ditto barley	0	10	0
Ditto oats	1	16	0

£35 9 7

Deduct for labour 19 | 15 | 3 |

Net return for rent, taxes, and profit £15 14 4

NO TITHE ON OAK COPPICE OF TWENTY YEARS' GROWTH.

IMPORTANT CASE.

LOZON v. PRICE.

This bill was filed by a rector of a parish in the county of Cardigan, to obtain a declaration in favour of his claim to the tithe of wood of above twenty years' growth, if such wood grew from old stocks, and was the original produce of the acorns. The question was argued at some length in May last, when it was contended that the only case in favour of such a claim as that of the rector was *Chichester v. Sheldon*, a point of the same description, arising out of a contest between the rector and the parishioners of the same parish, and decided by Sir Thomas Piemer. This case had been followed with reluctance by Chief Baron Alexander, in *Evans v. Rowe*, and it was argued that the decisions on the question were conflicting, and it was the object of the parties to have it finally settled.

The Lord Chancellor now gave his judgment. His Lordship stated the question as it was raised in the pleadings, and observed that the defendant in his answer claimed to have such wood exempt from tithe under the statute of the 45th of Edward III., chap. 3, which protected all *gros bois* from payment of tithe, those words having been subsequently construed to signify all trees above the age of 20 years. Now there was no doubt in his lordship's mind that wood of that description, growing from old stocks, and attaining the age of 20 years, came within the protection of the statute, although a different interpretation had been put on the words of the statute in several cases decided by the courts. As the question was one of very great importance to landlords and tenants, as well as to titheowners, his Lordship had considered it his duty to examine all the decisions, for the purpose of ascertaining the precise grounds on which they proceeded in holding wood of such a description to be subject to tithe, in defiance of the language of the statute, which Lord Coke was of opinion gave a positive exemption. For this purpose his Lordship took a review of all the cases from *Walton v. Tyron*, decided by Lord Hardwicke, down to *Evans v. Rowe*, which was decided in the Exchequer in 1825. In that case the Chief Baron felt bound by the former decisions; but he at the same time expressed a strong opinion that such wood was not *silva cædæ*, or coppice wood, and that it was exempt by the statute. Now, although it was very inconvenient to unsettle the law as it was found to be established by a series of decided cases, yet, at the same time, it was still more inconvenient to permit an error to become permanent. His Lordship, therefore, conceived it to be his duty, however reluctant he might be to overturn such decisions, to correct that which he found to be erroneous judgment. His opinion was, that the wood in question ought to be declared exempt from tithe, and he therefore decreed in favour of the defendant, and dismissed the plaintiff's bill, but under the circumstances, without costs.

THE AGRICULTURAL MAGIC SQUARE.

The sentences of "Agricultural Union is Strength," and "Speed the Plough!" may be traced from the respective centres of the following tables in an immense number, by the consecutive combinations of the letters. — Perhaps some ingenious correspondent can tell us the number of combinations that may be so made.

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MONMOUTH FARMERS' CLUB.—At the first meeting of the Monmouth Farmers' Club, held the 5th day of December, 1840, the use of saltpetre and nitrate of soda as manure was brought forward; but owing to the few trials made in this district with these manures, it was resolved that the subject should be deferred for further consideration at some future meeting. Underneath are the trials of these manures by the Secretary. The committee hope members will try these manures next spring, and register the results; or the trials will be of little benefit to the public.—Resolved, That the subject of discussion at the next meeting, to be held on the 2nd January, 1841, shall be "On the Breed, Management, and best mode of keeping Farm Horses."

The Committee cannot separate without expressing their gratification at the very liberal support afforded by landed proprietors, and the accession of fifty-four new members.

R. W. PURCHAS, Hon. Sec.

TRIALS BY THE SECRETARY.

Increase per acre, compared with the adjoining land where no manure was used.

	B.	G.	Q.	and	cwt.	qr.	lb.
Wheat, saltpetre	6	7	3		8	2	16 straw.
Nitrate of soda ..	4	6	0	..	2	3	16 ..
Barley, saltpetre	7	4	0	..	4	3	16 ..
Nitrate of soda ..	7	4	0	..	5	0	0 ..
Oats, saltpetre	6	4	0	..	2	0	0 ..
Nitrate of soda ..	10	0	0	..	5	3	0 ..

These trials were upon a farm taken Candlemas last, sandy soil, foul, and out of condition; 1 cwt. per acre of each manure sown broadcast on the 9th May, 1840.

	B.	G.	Q.	and	cwt.	qr.	lb.
Barley, saltpetre	4	4	0		7	3	12 straw.
Nitrate of soda ..	10	4	1	..	10	2	24 ..

Stone brash soil, clean, and good condition; 1 cwt. per acre of each manure, sown broadcast on the 1st May, 1840.

	cwt.	qr.	lb.
Meadow, saltpetre	2	3	16 hay:
Nitrate of soda	6	1	20 ..

Sandy loam in good heart, 1 cwt. per acre, sown 1st May, 1840.

N.B. May not the small increase from saltpetre in the two last trials be attributed to the land being in good condition, and consequently containing a considerable quantity of saltpetre in the soil?

OLD WINTER IS COME.

Old Winter is come in earnest—alack!

How icy and cold is he!

He cares not a pin for a shivering back,
 He's a saucy old chap to white and black,
 He whistles his chills with a wonderful knack,
 For a jolly old fellow is he!

A witty old fellow this Winter is;

A mighty old fellow of glee,

He cracks his jokes on the pretty sweet miss,
 The wrinkly old maiden unfit to kiss,
 And freezes the dew of their lips—for this
 Is the way with such fellows as he!

Old Winter's a frolicsome blade I wot;

He is wild in his humour and free!

He'll whistle along for the "want of thought,"
 And set all the warmth of our furs at naught,
 And ruffle the laces the pretty girls bought;
 For a frolicsome fellow is he!

Old Winter is blowing his gusts along,

And merrily shaking the tree!

From morning to night he will sing his song;
 Now moaning and short—now howling and long,
 His voice is loud for his lungs are strong—
 A merry old fellow is he!

Old Winter's a wicked old chap I ween—

As wicked as ever you'll see!

He withers the flowers so fresh and green—
 And he bites the pert nose of the miss of sixteen,
 As she flippantly walks in maidenly sheen—
 A wicked old fellow is he!

Old Winter's a tough old fellow for blows,

As tough as ever you'll see!

He'll trip up our troglers, and rend our clothes,
 And stiffen our limbs from fingers to toes—
 He minds not the cry of his friends or his foes;
 A driving old fellow is he!

A cunning old fellow is Winter, they say,

A cunning old fellow is he!

He peeps in the crevices day by day,
 To see how we're passing our time away,
 And marks all our doings from grave to gay—
 I'm afraid he is peeping at me!

LIFE LEASES.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Having in my two former letters attempted to elucidate the advantages accruing from Life Insurance in cases therein adverted to, a further consideration of the subject has suggested other and no less important benefits, that cannot fail to await those who have faith in the maxim, that "To be forewarned is to be forearmed."

It is gratifying to know that the principles of life insurance are now so much better understood than they were at the beginning of the last century; for it is a curious fact, that so imperfectly was this great social blessing formerly comprehended in this country, that from the year 1706 to 1702 there were but three insurance offices in London. The first institution of the kind owed its origin to a Bishop of Oxford, in the reign of Queen Anne, who, in conjunction with several other benevolent individuals, established a society, which was incorporated in the former year under the title of the *Amicable Society*. To this were afterwards added the *Royal Exchange*, and *London Assurance* companies. Since that period the number has greatly increased, though very many have been broken up, principally, I believe, from an ignorance of those mathematical and scientific data so essential to their stability, and which are, at the present day, so much more accurately defined.

Touching the tenure upon which farming property is held. Few of your readers, I presume, require to be told, that in this county the custom of tenancy is by lease of seven, fourteen, and twenty-one years; that, in many other counties, tenancy-at-will is too much in vogue; while in others, leases are granted for one, two, or more lives. It may not, however, be so generally known that, in the western counties and in Wales, as well in the sister kingdom, the latter custom prevails; indeed, where the estates are ecclesiastical property, church or life-leases are almost uniformly granted—a mode of disposal infinitely more advantageous, both to the tenant and the estate, than the holding at will, or from year to year, since no occupant, however unflinching he may deem the integrity of his landlord, can be reasonably expected to exercise that liberal spirit of husbandry which would suggest itself under a more permanent tenure.

In speaking of life leases, I am aware that instances may exist where landed property is leased for a single life—not the most favourable either to landlord or tenant; but the description of tenure which I have more particularly in view, is, leases on, say three lives, renewable on the determination of the same at the option of the lessee. Farms so acquired may be considered akin to freehold; but in the obtaining such—for ecclesiastical property is generally some of the best and fattest in the land—a fine of no inconsiderable amount is necessary to be paid down, certain lives being nominated as the duration of the tenure. These lives having fallen in, the lease (as already stated) expires, but is renewable on the same conditions, namely, by the payment of a new fine, arbitrary or certain, and the nomination of other lives.

Now it may be confidently assumed, that in the localities to which I have alluded, there may be found several hundred tenants who enjoy their occupancy upon life leases; and no small proportion of these, I think it may be also fairly assumed, have, on taking possession of their farms, absorbed probably the whole of their capitals; first, in the

payment of the fine, and secondly, in the sum required for valuation and stock. The rent, however, being a nominal one, and the lives inserted in the lease offering the fairest prospect of "length of days," the tenant enters upon his precarious labours, encouraged by the hope, that, with the blessing of prosperous seasons, he will ultimately reimburse himself, improve the estate, and finally leave the accumulations of an active and economical life to the enjoyment of his family.

It is at this point that LIFE ASSURANCE steps in as a friendly monitor, and suggests to the farmer the expediency of *provision against contingency*—a provision that is imperatively called for by the possibility of two occurrences, namely, his own death, or the determination of his lease by the unexpected falling in of the lives named in the covenant. Now, let us assume the first event after a few years possession of the farm: the tenant dies, and a division of his property takes place; that division, however, perils the occupancy of the estate; the son who succeeds to the farm, finding himself unable to carry it on to a profitable account, is eventually compelled, and that, too, after probably scourging the land by over-cropping, to abandon the acres upon which his predecessor had expended so much in skill, capital, and industry. But what a different aspect would the same case wear, if the testator had protected his farm against such a calamity by the insurance of his life for 1000*l.* or 1500*l.*; for then, instead of bequeathing the proceeds of his estate in subdivisive proportions, he might have left a policy to cover his testamentary dispositions, the farm would have remained unenthralled, and its profitable management pursued to the substantial benefit of his posterity. This is a consideration that should operate seriously upon the mind of every agricultural tenant who has a family dependent on his own exertions, and whose death, if unmitigated by life insurance, would be their destitution.

Again: assuming the second case—since nothing is more fleeting than the frail existence of poor humanity—the three lives which bade fair to live their "three score years and ten," are suddenly cut off by epidemic or some unexpected visitation, and the farm reverts to its original possessor. LIFE ASSURANCE again points to expediency, and suggests to the occupier at such a moment the alleviation which domestic sorrow would derive in the reflection, that a policy sufficient in amount to command a renewal of the lease had been effected upon the joint lives of the deceased.

Independently of the foregoing considerations, I have also been forcibly struck with the additional and cogent temptation, to perform such acts of justice and duty, which is offered by the Insurance Tables of the present day, but more especially in a table now before me, connected with the *Farmers' Life Insurance Association*, wherein I find, on examining the "Annual Premiums to Assure £100 payable at the death of the last survivor of three lives," that, taking three individuals whose respective ages on their ensuing birth-day shall be ten years, the above-named sum may be secured to a lessee by the yearly payment of the insignificant sum of 1*4s.* 3*d.*; and that the still more useful amount of £1000 may be eventually secured by the annual payment of 7*l.* 2*s.* 6*d.*, or less than three shillings per week! To those who may object that even this small sum can be ill-spared by the farmer, from the many indispensable imbursements necessary in his predial operations, there appears to me to be a satisfactory answer in the announce-

ments occasionally to be met with in the columns of the *Express*, where I have seen it stated that premiums need not be paid in the whole yearly demand, but are receivable half-yearly, quarterly, and even monthly! With such facilities afforded to the agricultural community, there will not, it is to be hoped, after a time, be found in any part of the United Kingdom, the tenant of a life lease so short-sighted as to neglect the solid benefit thus held out.

The more, in short, one reflects on this deeply important question—weighing positive security against possible ruin—the more earnestly resolved ought every man to be, who farms under life leases, to place himself and his kindred beyond the evils which too frequently befall the uninsured.

Norfolk, Jan. 8, 1841.

FRUGALITAS.

NITRATE OF SODA.

SIR,—As there appears to be much diversity of opinion, whether nitrate of soda is beneficial or not in its effects when applied to land, and many varying results after its application, I am induced to send you an account of some trials I have made during the present year; I do this more readily, as it is only by an accumulation of facts that any general conclusions can be arrived at. I distributed the nitrate of soda broadcast on the 27th of April, it was very hot and dry, no rain had fallen for a month previously; the quantity of the saline employed was 1½ hundred weight to the acre; it was applied to spring tares, oats, barley, beans, peas, clover and wheat. The wheat succeeded partly fallow-land, and partly clover-ley. The nature of the soil on this farm is a stiff heavy deep clay. No perceptible difference took place in any of the crops to which the nitrate was applied until after the rain had fallen, which occurred in a fortnight; after this, that portion of the wheat which was manured with the soda (and the year before was preceded by a clover-ley) quickly became more luxuriant in growth and darker in colour, the same effects were developed on the young clover that was sowed; on none of the other crops could I perceive the slightest benefit from the application of the nitrate. The stretches of clover land wheat to which the soda was applied, were reaped by themselves, an equal number to which it was not applied were also reaped; on thrashing each quantity, it was found the manured portion yielded one fourth more grain, one third more straw than the other, but the sample was not so plump, nor its colour so good, the straw was not so bright. The same plan was not followed with the other crops to which the salt was distributed, as upon the most diligent investigation at harvest, not the slightest difference between these and the other portions of the fields could be perceived.

In the months of June and July, I applied the nitrate to mangel, Swedes and white turnips, no benefit followed.

In offering to you the conclusion I arrive at from these results, I beg to say, I only throw it out as a hint for other investigators and for my own farther research, for nothing can be more dangerous to the advance of knowledge than drawing sweeping general conclusions from few and isolated facts.

It appears to me, that nitrate of soda on the heavy lands of this district, is only useful to crops which have succeeded a clover-ley, and to young clovers. Should the future experience of others agree with my own, it at once points out the fields to which in a season it ought to be applied, and may remove some of the conflicting opinions regarding its value as a manure.

OSWALD COPIAND,

Groce-hall, Tivleshunt Knights, Essex.

WRENTHAM FARMERS' CLUB,

ESTABLISHED 1839.

SECOND ANNUAL REPORT.

The committee appointed to prepare the report of the Wrentham Farmers' Club for the past year, have great pleasure in announcing the gradual increase of its members, and the progressive improvement in the science of agriculture, arising from the general discussions that have taken place upon subjects connected with that important interest.

The committee feel confident that, while they strictly adhere to one of their fundamental rules, of excluding political subjects from their discussions (and which regulation they have acted upon in the course of the present year), these societies cannot fail to be productive of the greatest benefit, by arousing the farmer from his characteristic apathy; by reducing the pursuits of agriculture to scientific principles; and by encouraging the employment of capital; which alone can ensure success and improvement in the cultivation of the soil, now every day bringing new improvements into practice, by means of increased knowledge and exertion, which is chiefly encouraged, if not entirely produced, by the stimulus of these societies.

The committee are sensible that the too free discussion of the increased produce of the soil, without at the same time stating the increased expenditure to obtain that produce, may, in some cases, be liable to produce false notions in the minds of some few persons who have not a practical knowledge of agricultural pursuits; still, the committee are of opinion, that the discussions on the management and preparation of manures, and their application to different kinds of soil, on scientific principles; the necessity of great cleanliness in the cultivation of farms; the advantage of the growth of roots, and other green crops, upon a more extended scale; their preservation for winter consumption, and method of consuming; and the selection of the best seeds; are subjects of the greatest general utility for discussion: and the committee feel that the society is highly indebted to those members who have made practical experiments, and so liberally communicated the results for the benefit of their neighbours.

The committee are of opinion, that the advantage of obtaining good turnip and beet seed is a subject of the greatest importance to agriculturists, and they think that the encouragement of the growth of these seeds in the cottagers' gardens, under their own inspection, is the best means of procuring seeds of a genuine description; and that while it would encourage and remunerate the cottager, by establishing prizes for the exhibition of the best and cleanest samples of seeds of this description, to be shewn at some of their monthly meetings,—it would also be the means of obtaining the purest and best seed for use. The committee therefore the early consideration of this subject is known that turnip seed is a thing to buy, and not a thing to grow, and the disappointment of the farmer.

The committee introductory remarks for the past year, are anxious of their club, following year

At the same meeting, a gentleman gratuitously delivered a lecture on the nature and properties of bones, and their various applications; more particularly as regards their chemical character and fertilizing effects as a manure; from which we find the great want of chemical knowledge in detecting the necessary qualities so essential to the growth of plants. The operation which it was necessary for them to undergo, in the mucilaginous and oily parts, appear to us, which if retained, would be of great value for the purpose the lecturer recommending.

“Clod burning” occupied the attention of the meeting in May. Several members, practically acquainted with this subject, expressed themselves in its favour, more particularly with respect to land recently brought into cultivation, as a means of giving more solidity to the soil, thus producing corn of better quality and straw less liable to lodge. It is also considered an excellent preparation for turnips on strong lands, and quite equal to a full coat of farm-yard manure. Burning, in too large a quantity at one time, is not recommended—about thirty loads per acre may be considered an average

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quantity; and if not repeated oftener than once in eight years, the land will not be deteriorated thereby. For the operation to be performed effectually, the land requires to be of a porous nature; such as are of a close texture, or having any portion of sand in them, will not burn on small heaps. Burning old borders was particularly recommended, not only as producing a valuable manure, but as the means of destroying the roots and seeds of noxious weeds. The meeting agreeing generally in these observations, came to a resolution accordingly.

The following meeting in June was engaged in discussing an appropriate subject for the season—"the best method of making and securing the hay crop." The discussion on this question turned principally on the proper season for cutting artificial grasses, more particularly trefoil, with regard to which great disappointment had been frequently experienced; that although it had been well made, and stacked in excellent condition, and had a fragrant smell, still horses would not consume it. This, it was contended by some, was occasioned from being cut before it had obtained its proper growth, thus acquiring, by its premature cutting, a bitter and unpalatable taste. Others had experienced the same disappointment when it had not been cut till the full growth was attained. With these different statements, it appeared to the meeting desirable that a medium time for cutting should be observed—neither too early nor too late. The result of the discussion is embodied in the following report:—

"That trefoil should be cut when the seed is formed from the first blossom, and after laying a sufficient time on the swathe to be put into cocks, which will require to be strewed out previous to carting, and that the same observations with regard to the making would apply to all other artificial grasses. With reference to natural grasses, it is considered desirable that the ground be left to dry a short time previous to its being strewn, and afterwards to be frequently stirred, and cocked in the evening. Salt was recommended to be sown on the stack, as tending to promote the health of stock in its consumption, more particularly hay that has been damaged by wet."

"Laying down lands for permanent pasture" was the next subject for consideration. The remarks of the member introducing this question (who had had some experience in laying down pastures) went to shew, that lands intended for this purpose require to be in a good state of cultivation, and that good pasture must not be expected from worn-out ploughed lands, without being previously well drained and manured; that care should be taken in the selection of seeds of the best perennial description; and that where the tenant is required to lay down lands for a permanency, the landlord should find the seeds. An instance was recorded to the meeting of land being laid down part with and part without a crop, and the pasture being equally as good from the one as the other; but in laying down with a crop, it is very desirable to seed the land with only half the usual quantity of grain. Feeding lightly the first crop was rather preferred to mowing; the latter plan, it was thought, tended to exhaust the new grasses. A resolution was passed on this subject, agreeable to the above discussion; and it was further recommended that, in order to secure its permanency, a great variety of grasses should be sown, selecting such as are best adapted to the soil intended to be laid down. In feeding the first season, great care should be taken not to feed too close in the summer, nor too late in the autumn;

and it was also considered desirable that newly-laid down pastures should have a dressing of manure, and an addition of seeds sown the following spring.

The next subject which engaged attention was "the advantage to be derived from the use of oxen for the purpose of labour, in lieu of horses." The member introducing this subject contended, that a great saving would be effected by the use of a portion of oxen, instead of working horses, as is the custom in this county, till they are of little or no value; that horses, after eight years old, decrease in value yearly; whereas, by working oxen for three years, and then renewing them, they are always increasing in value; that oxen are kept at less expense than horses, and that less capital is required in the first instance for the purchase of the former. It was also shewn by a statement, taking the working portion of a horse's life to be fifteen years, at the expiration of which period he would be of little or no value, that by renewing oxen every three years, there would be a considerable balance in their favour at the end of the fifteen years, supposing the labour of four oxen to be equal to that of three horses. A member also stated, that a saving would be effected by the plan of buying in three-year-old colts, and selling out a portion of horses yearly, at five or six years old,—a system much pursued in Lincolnshire, and which it was thought would be a good system, although not generally practicable, as purchasers could not then be found for all the horses of that age. The meeting came to the following resolution:—

"That working oxen may be used with advantage, to a certain extent, for the purposes of agriculture, on most occupations."

At the last monthly meeting in November, the club met at an earlier hour, to witness the exhibition of roots, which was very good, both as regards quantity and quality. The several sweepstakes, entered into at previous meetings, were awarded by the judges as follows:—

The best field of common beet from manure, Mr. L. O. Cottingham.

The best field of yellow beet, Mr. J. S. Crowfoot.

The best field of Swedes, Mr. L. O. Cottingham.

The best three Swedes (exhibited), Mr. L. O. Cottingham.

The discussion for the evening was "the best method of storing the root crop." The observations arising out of this subject applied principally to the preservation of beet, great loss having been frequently sustained with regard to this valuable root. The more simple and less expensive plan, now almost general, has been found by experience to be the best preserver; as it was proved by several years' practice, that straw was not required to preserve beet when clamped, except a small quantity on the top, but that earth alone was the much safer covering. Several cases were stated, in which even a stack of straw being built over the clamp had not protected the crop from frost, while a simple covering of earth only had been found effectual. One case in particular we quote, of a clamp being covered up on one side (next a hedge) with stubble of immense thickness, the other side with earth alone; the result was, that half the clamp covered with stubble was entirely destroyed, while the other half remained uninjured. After fully entertaining this subject, the following resolution was agreed to:—

"With reference to the storing of beet, it is the decided opinion of this meeting, that as soon as the crop

has arrived at maturity, it should be carted off the land, and put on clamps of six or seven feet wide at the base, tapering off to a narrow ridge, carefully packing the crowns of the roots outside; and after time has been allowed for the heat to evaporate, to be then earthed up, without the use of straw, except a small portion on the top of the clamp. The earthing to be about six inches thick, and the top to be left open till a sufficient time has been allowed for evaporation, or an appearance of frost setting in, and then closed up as the other parts. Swedes can be stored in a similar manner, with the exception that they are better not earthed up (unless wanted for consumption in severe weather, when a slight covering of earth is desirable), but to be more thickly covered with straw."

The treasurer's accounts were examined and passed, and a balance of £4 14s. 8d. carried forward for the current expenses of the ensuing year.

The committee recommend that a subject for each monthly meeting be fixed at the commencement of the year, and a list printed and delivered to each member, unless the same should be superseded by the wish of any individual member to introduce a subject of his own, in which case he is to be allowed the precedence.

The result of the committee's report upon the utility and advantage of farmers' clubs, considered in a general point of view, is, that they are the best means of protecting the interest of the farmer, by raising his occupation to that eminence to which its importance so justly entitles it, and which has hitherto been too long neglected; for while thus protecting the farmer's interest, a national benefit is conferred at the same time—as it must be admitted by every unprejudiced mind, that the produce of the soil is the natural wealth of this country, to increase which and to protect which must be an undertaking of the first importance to the nation, and of general and universal benefit to the community.

The committee will not venture to intrude any further remarks, or to touch upon any subject that may not strictly be considered to fall within the limits of those objects for which the club is established; but they cannot conclude this report without strongly recommending a steady adherence to its rules, and a firm continuance of that unanimity and good understanding amongst its members that has hitherto so eminently marked its proceedings, and which will ever be the surest method of securing the protection of their common interests.

JAMES HINGESTON, Chairman.

ADULTERATION OF BUTTER.—Mr. Patrick Black brought under notice of the Board the extent to which adulterated butter was sold in Glasgow. Portions of it had been analysed by Professor Thompson, who found one-half to consist of the genuine article, and the other of oatmeal. But this was not all, said Mr. Black, for yellow turnips, baker's soda, and even weaver's dressing, were mixed up with the article, for the purpose of imposing on the public. Mr. Black produced a quantity which he had analysed himself, and only one-half of which appeared to deserve the name of butter, the rest was oatmeal. In the discussion which followed, it was stated that many persons were in the habit of selling this butter without being aware of its adulteration. All, or most of it, was Irish butter; and Mr. Burnet stated that there was a regular establishment at Londonderry for the adulteration of it. He would recommend the magistrates of Glasgow to correspond with the mayor of that city on the subject. It was finally resolved to leave the matter in the hands of the magistrates, with a request that they would apply a remedy to an imposition alike mean and dishonest.—*Scots Times.*

WEIGHTS OF ANIMALS EXHIBITED AT THE SMITHFIELD CATTLE SHOW,

9TH, 10TH, 11TH AND 12TH DEC., 1840.

[We should have given the weights of the prize cattle exhibited at the Smithfield Show sooner, but were anxious to obtain them officially. We now insert them as received from Mr. H. Gibbs, the Honorary Secretary of the Club.—Ed.]

CLASS I.

The Right Hon. the Earl Spencer, Althorpe, won the premium of 20 sovs., 4 yrs. and 5 months Durham ox; dead weight, 200st. 6lbs.; loose fat, 23st. 2lbs.

Mr. F. Wratlaw, Rugby, won the premium of 5 sovs., 4 yrs. and 7 months Hereford ox; dead weight, 170st.; loose fat, 17st.

Mr. John Jellicoe, Brighterton, 4 yrs. 7 months Hereford ox; dead weight, 186st.; loose fat, 16st.

Right Hon. C. Arbuthnot, Woodford, 4 yrs. 1 month Durham ox; dead weight, 215st.; loose fat, 25st.

His Grace the Duke of Bedford, 4 yrs. and 3 months Hereford ox; dead weight, 220st. 2lbs.; loose fat, 21st. 4lbs.

Mr. S. Cheetham, Hambleton, 4 yrs. and 7 months short-horned ox; dead weight, 182st. 5lbs.

CLASS II.

The Right Hon. the Earl Spencer won the premium of 30 sovs., 5 yrs. and 1 week Durham ox; dead weight, 234st. 6lbs.

Mr. Buckley, Normanton Hill, won the premium of 5 sovs., 4 yrs. and 11 months Hereford ox; dead weight, 168st. 4lbs.

His Grace the Duke of Bedford, 3 yrs. and 11 months Hereford ox; dead weight, 172st. 2lbs.; loose fat, 22st.

Right Hon. C. Arbuthnot, Woodford, 4 yrs. and 3 months Durham ox; dead weight, 212st.; loose fat, 25st.

Mr. W. Loft, Trusthorpe, 4 yrs. and 7 months short-horned ox; dead weight, 221st. 6lbs.

Right Hon. the Earl of Warwick, 3 yrs. and 11 months Hereford ox; dead weight, 183st. 4lbs.

Mr. W. L. Sutton, Dunchurch, 4 yrs. and 11 months Hereford ox; dead weight, 182st.; loose fat, 23st.

CLASS III.

Mr. W. L. Sutton, Dunchurch, 4 yrs. Hereford ox; dead weight, 156st.; loose fat, 25st.

Mr. W. Lowndes, Chesham, 3 yrs. and 6 months Durham steer; dead weight, 165st. 7lbs.; loose fat, 18st. 6lb.

CLASS V.

Mr. W. Hay, Shethin, won premium of 10 sovs., 3 yrs. and 10 months Hereford and short-horned ox; dead weight, 136st.

CLASS VI.

Mr. B. E. Bennett, Market Harboro', won premium of 10 sovs., under 5 yrs. Scotch ox; dead weight, 127st. 4lbs.; loose fat, 21st. 4lbs.

Mr. W. McCrombie, Tillyfour, 5 yrs. and 8 months Aberdeen ox; dead weight, 232st. 4lbs.

CLASS VII.

Mr. B. E. Bennett, Market Harboro', won premium of 10 sovs., Scotch ox; dead weight, 121st. 4lbs.; loose fat, 21st.

CLASS VIII.

- Mr. J. F. Potterton, Stowe, near Weedon, won premium of 20 sovs., 4 yrs. 7 months Durham heifer; dead weight, 182st. 2lbs.; loose fat, 24st. 4lbs.
- His Grace the Duke of Norfolk, 4 yrs. and 2 months Devon; dead weight, 102st. 1lb.
- Sir Felix Booth, Brantford, 3 yrs. and 9 months Hereford; dead weight, 128st. 5lbs.; loose fat, 21st. 6lbs.
- Mr. R. Morton, Penkill, 4 yrs. and 10 months short-horned; dead weight, 187st. 6lbs.

CLASS IX.

- Mr. J. H. W. Jones, Chastleton House, won premium of 5 sovs., upwards of 12 years long-horned cow; dead weight, 117st. 4lbs.
- Mr. T. L. Meire, Cound, 8 yrs. and 10 months Hereford; dead weight, 169st. 2lbs.
- Mr. W. Barclay, Hasely, 5 yrs. and 1 month Hereford; dead weight, 142st. 6lbs.

CLASS X.

- Mr. H. Chamberlain, Desford, won premium of 10 sovs., 20 months old, 3 new Leicester Wethers; dead weight, 13st. 4lbs., 15st. 7lbs., 16st. 2lbs.
- Mr. J. Painter, Burley-on-the-Hill, won premium of 5 sovs., 20 months old, 3 new Leicester Wethers; dead weight, 15st. 6lbs., 16st. 4lbs., 17st. 6lbs.
- Mr. J. S. Burgess, Holme Pierrepont, 20 months old, 3 long-wooled Sheep; dead weight, 14st. 5lbs., 16st. 2lbs., 18st. 1lb.; loose fat, 6st. 1lb.

CLASS XI.

- Mr. J. Painter, Burley-on-the-Hill, won premium of 10 sovs., 20 months old, 3 new Leicester Wethers; dead weight, 14st. 4lbs., 15st. 6lbs., 16st. 2lbs.
- Right Hon. Earl Warwick, under 22 months old, 3 Leicester Wethers; dead weight, 11st. 1lb., 11st. 7lbs., 12st. 4lbs.
- Mr. H. Chamberlain, Desford, 20 months old, 3 new Leicester Wethers; dead weight, 12st. 4lbs., 14st. 2lbs., 15st.

CLASS XII.

- His Grace the Duke of Bedford, won premium of 15 sovs., 20 months old, 3 Leicester Wethers; dead weight, 19st. 6lbs., 20st. 3lbs., 21st.; loose fat, 6st. 2lbs.
- Mr. J. Painter, Burley-on-the-Hill, won premium of 5 sovs., 20 months old, 3 new Leicester Wethers; dead weight, 20st. 2lbs., 20st. 4lbs., 22st.
- Mr. H. Chamberlain, Desford, 20 months old, 3 new Leicester Wethers; dead weight, 14st. 2lbs., 14st. 6lbs., 15st. 2lbs.
- Mr. W. Purner, Cople, 21 months old, 3 Leicester Wethers; dead weight, 17st. 5lbs., 18st. 2lbs., 18st. 5lbs.
- Mr. J. Oakley, Frindsbury, 20 months old, 3 Kent Wethers; dead weight, 59 stone; loose fat, 6st.

CLASS XIII.

- Mr. S. Grantham, Stoneham, won premium of 5 sovs., 20 months old, 3 Southdown Wethers; dead weight, 15st. 5lbs., 14st. 1lb., 15st. 1lb.
- Mr. J. Harris, Hinton, 20 months 2 weeks old, 3 Southdown Wethers; dead weight, 17st. 1lb., 15st. 3lbs., 18st. 1lb.
- Mr. S. Jones, Iceton, 20 months old, 3 Southdown Wethers; dead weight, 13st., 13st. 2lbs., 15st. 7lbs.; loose fat, 6st. 4lbs.
- E. G. Barnard, Esq., M.P., Gosfield Hall, 21 months old, 3 Southdown Wethers; dead weight, 15st., 15st. 4lbs., 16st. 2lbs.

CLASS XIV.

- His Grace the Duke of Richmond, 20 months old, 3 Southdown Wethers; dead weight, 16st., 16st. 6lbs., 17st. 4lbs.

CLASS XV.

- Mr. W. Hayward, Weston Turville, won premium of 5 sovs., 32 months old, 3 Southdown Wethers; dead weight, 16st. 5lbs., 16st. 7lbs., 17st. 5lbs., loose fat, 7st.
- His Grace the Duke of Richmond, 32 months old, 3 Southdown Wethers; dead weight, 15st. 2lbs., 18st. 4lbs., 19st.
- His Grace the Duke of Norfolk, 33 months old, 3 Southdown Wethers; dead weight, 18st. 1lb., 19st. 5lbs., 21st.
- Right Hon. Earl of Lovelace, 32 months old, 3 Southdown Wethers; dead weight, 15st. 5lbs., 17st. 1lb., 17st. 2lbs.
- Mr. John Harris, Hinton, 32 months old, 3 Southdown Wethers; dead weight, 24st., 22st. 4lbs., 21st. 4lbs.
- E. G. Barnard, Esq., M.P., Gosfield Hall, 33 months old, 3 Southdown Wethers; dead weight, 19st. 2lbs., 19st. 4lbs., 19st. 6lbs.
- Mr. R. Kersey, Hadleigh, under 34 months old, 3 Southdown Wethers; dead weight, 18st. 4lbs., average.

CLASS XVI.

- M. W. Temple, Heston, won premium of 10 sovs., 35 weeks old, 3 Imperial Bucks. Pigs; dead weight, 44st. 8lb., 43st. 4lbs., 48st.
- Mr. R. Wortheyson, Brockhurst, won premium of 5 sovs., 34 weeks old, 3 Warwickshire Pigs; 28st. each.
- Right Hon. Earl Harborough, 25 weeks old, 3 Neapolitan and Chinese Pigs; dead weight, 16st. each.
- Mr. J. Crawther, Isleworth, 26 weeks and 2 days old, 3 Middlesex Pigs; dead weight, 32st. each.

EXTRA STOCK.

- Mr. C. Large, of Broadwell, Oxon, a silver medal, for best Sheep in extra stock, a long-wooled ewe; 35st., 36 months old.
- Mr. J. Crawther, of Isleworth, a silver medal, for the best Pig in extra stock, 30 weeks and 2 days, improved Middlesex Pig; 24st. 4lb.

THE FARMER'S ALMANAC.—We are happy to see that the farmers have now an almanac specially adapted for their own use. Almost every trade and profession has one of these very useful publications; and it is only justice to themselves that the farmers, so numerous and important a body, should enjoy a similar advantage. "The Farmer's Almanac and Calendar for 1841," is the commencement of, we trust, a long series, for every success is deserved, both as regards the intrinsic usefulness of the publication and the great care and skill with which the editors, Messrs. Johnson and Shaw, have executed their task. The "Farmer's Calendar," a series of notices adapted to each month, as it is the chief feature in this new almanac, appears to us highly valuable. We have besides a list of fairs throughout the kingdom, of agricultural societies, and a great variety of useful tables, besides all the information required by ordinary readers. In the list of agricultural societies we have noticed some errors and some deficiencies, but the wonder is that upon the whole so much accuracy and fulness have been attained. The list of the House of Commons is not so correct as it ought to be; but these are motes in the sunbeam. We recommend the work to our farming readers with the utmost confidence and pleasure.—*Kendal Mercury*.

TO THE EDITOR OF THE MARK-LANE EXPRESS.

SIR,—In one of your valuable papers in July last, and also in the *Farmer's Magazine* of that month, I read a letter signed J. D., on the cultivation of "poor clay lands," in which the subject is elaborately discussed. I am so unfortunate as to be the occupier of a poor clay farm; and always read with great attention any article that treats on the culture of such soils, hoping to meet with information which may put me in a better system of management than I now practice.

I assure your talented correspondent, I write this in the true spirit of friendly discussion, seeking for information on a perplexing subject; and should I appear to differ from him in any of his propositions, it is with the desire of learning more from him, than with any certain conviction that he is wrong in what he advances.

I consider the culture of these soils of the greatest importance to the country, and the subject cannot be too frequently introduced; for it is my firm opinion, that there lays hidden within twenty inches of the surface of *clay soils*, a source of wealth, which, under a proper system of management would be brought to light, and prove of the greatest advantage, not only to the owners and occupiers of such lands, but of immense importance to the community at large, in yielding a vast additional produce for the national consumption; and render us more independent of foreigners for the bread we eat.

From the description of the soils to which J. D. immediately refers, they must be of a very inferior kind, as he values them at from 8s. to 16s. an acre. He remarks, "drilling of wheat can seldom be practised; the wetness of the lands and very awkward form of the *ridges*, lying in crooked, unequal, and serpentine breadths, present a great obstacle to any attempt at drilling by machinery." From this, the land to which he alludes, lays in what we call *ridge and furrow*, and consequently at some period was cultivated by the plough. If this was the case, we certainly with all our modern improvements, have rather receded in the science of agriculture than advanced, if such soils cannot now be cultivated to advantage. Observe, he says, "from the *wetness* of the lands, &c., they cannot be drilled," it appears, therefore, that the only means now used to take off the surplus water are the same as in the days of our fore-fathers—merely laying the lands in the form of segments of a circle, that the water might naturally find its way on the surface to the furrows; and forcing a channel down them, makes its egress as it can. Under such circumstances, I am not surprised to hear, that there cannot be grown "green or leguminous crops," or, in fact any other.

Your correspondent says, "a long practice in cultivating them (clay soils), where the fallows amounted to 150 acres annually; surely he never was so unfortunate as to have such a quantity of *undrained* clay fallows in his occupation, for in such a case he really would require our sympathy. He further observes, "it remains to be seen what difference will be made in these soils by the modern system of furrow-draining; whether it will render them more loose and friable, and more fitted for green plants." I am constrained from the apparent doubt which J. D. expresses, as to the efficacy of draining on such lands, to make a few observations upon this important point. From what practice I have had in the culture of clay land, I am convinced it is utterly useless to have them otherwise than in pasture, unless they are judiciously and thoroughly *DRAINED*; and I am rather surprised to hear the undetermined manner in which your correspondent speaks of this, the greatest of all modern improvements in the cultivation of heavy, *tenacious*, clay soils. I believe it to be essential to have the surplus water quickly taken off such land by systematic draining, before any rotation of crops can be produced to advantage. I do not say that it would render them capable of growing all green crops, but I am convinced the leguminous kinds might be grown: neither do I

assert that a summer-fallow could always be dispensed with, for I am well aware the great difficulty there is in keeping poor clay soils clean without pursuing this course; but, if the *drill* be used in putting in the seed, and the *horse hoe* frequently worked, I think it practicable to adopt the system of alternate fallow and green crop in each rotation. The green crop, which I take is tares; I find them more certain than any other, and they are very useful as feed for sheep, or soiling horses; but should be sufficiently early to get the land worked during the summer. J. D. speaks of spring tares in preference to the winter, but I always use the latter when I intend to avoid a summer fallow, and sow them as early as possible after the land is cleared of its crop. If the season be favourable in the spring they will be a good pasture for sheep in April, when I give them a portion at a time; and as they eat them, the plough fallows, and turning up a deep furrow, which I afterwards work with "Biddell's Scarifier," and "Crosskill's Clod-crusher," and generally manage to get it in a good state to receive manure and lime by October, when I plough it up-hill, and so it lays throughout the winter. Land which has produced a green crop, I think better sown with oats or barley than wheat, because the winter has such effect upon the soil, that early in the spring it may be drilled after running a light acuffler or harrow before the drill. Perhaps J. D. will exclaim, "this plan will not do with my stubborn, tenacious, poor clay land, and the awkward manner in which the ridges lay." I do not heed how the ridges lay, or how tenacious the soil may be; if the land be but well drained, I would be bound to use the drill, always working it crossways of the ridges. I confess this culture requires power, and proper implements; and it is no use a person farming such land unless he has sufficient to employ six horses, because the necessary implements could not be worked, at particular times, with less.

I have already, Mr. Editor, trespassed so long upon your patience, that it would be imprudent to enter into further details of draining, rotation of crops, or general management; but I would venture to recommend to your correspondent to try a *thorough system of draining*; for, until he gets the surplus water out of such land, I am persuaded it is in vain to cultivate them. He would soon find whether it would make these soils "more loose and friable, and more fitted for green crops,"—in this respect I will venture to predict he would not be disappointed. In discussions of this nature I see no reason for using any other than one's own name.

GEO. KILBY.

WRENTHAM FARMERS' CLUB, MONTHLY MEETINGS;—Subjects for discussion:—

- FEBRUARY. The best method of rearing cattle, and of improving the native breed.
- MARCH. On the application of nitrate of soda.
- APRIL. On the most improved varieties of beet and Swedes for cultivation.
- APRIL. On the proper application of farm-yard manure. To what crops can it be most beneficially applied?
- JUNE. The advantage of horse-hoeing for the purpose of cleaning the root crop.
- JULY. On the cultivation of lucerne.
- JULY. The practical effects of subsoil ploughing to be reported, and its utility reconsidered.
- SEPTEMBER. On the breed of sheep best adapted for this neighbourhood, combining weight and quality of fleece, with aptitude to fatten.
- OCTOBER. The best method of planting wheat.
- NOVEMBER. The breed of cattle best adapted for grazing purposes.

It is in contemplation to form a Farmers' Club at Sudbury, after the plan of that at Woodbridge and Hadleigh, for the purpose of discussing questions connected with the improvement of agriculture.

ON TURNIP CULTIVATION.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In your paper of Monday, December 14th, I read a letter reprinted from the Bury Post, and originating from your practical correspondent *Rusticus*; its purport is an examination into the best system of cultivating our root crops, particularly the Swede turnip. The writer, it appears, is not satisfied with the ordinary acreable produce raised in his district, and cites an account which appeared in the Express, 30th December, 1839, from a Mr. James Scongall, of Balgona, in Scotland. This account alludes to the great superiority (as shown in experiment) of autumnal preparation to spring; *Rusticus* also refers to Mr. Matson's statement of having grown from 40 to 45 tons to the acre, and concludes his communication with an extract from my letter to the Mark Lane Express, 16th December, 1839,—“Mr. Barratt, of Agden, near Altringham, in 1833 produced upwards of 54 tons of mangel wortzel to the acre, and the successful candidate for the premium of £5, offered by the Manchester Agricultural Society in 1838, had a crop of six acres weighing 39 tons to the acre.”

Now, Sir, the re-appearance of this, and you, in your editorial remarks on *Rusticus's* letter, having expressed a rather firm hesitation as to the veracity of such statements, is the occasion of my taking up my pen at this time; because for five days out of the six I walk not less than ten miles in surveying and directing one of the most interesting and important agricultural improvements now progressing in this country; add to this a farm in hand on my own account, the rental of which is some hundred pounds per annum; and therefore *practical* men will readily believe that my time may be tolerably occupied without engaging myself in newspaper controversies of any kind—however, feeling myself called upon, I will proceed and add some further testimony by giving the weights of several crops I have assisted to weigh in November last, for a few of the candidates for the premiums offered by the Manchester Agricultural Society in 1840, but I must be excused giving names, because the committee have not yet considered our reports.

- No. 1, weighed Nov. 9, part of a crop of 8 acres, average weight per perch, 514 lbs.
- No. 2, weighed Nov. 9, part of a crop of 7 acres, average weight per perch, 415½ lbs.
- No. 3, weighed Nov. 10, part of a crop of 5 acres, average weight per perch, 504 lbs.
- No. 4, weighed Nov. 10, a crop of mangel, 5 acres, average weight per perch, 437 lbs.
- No. 5, weighed Nov. 10th, a crop of turnips, 10 acres, average weight per perch, 504 lbs.
- No. 6, weighed Nov. 11, a crop of 10 acres, average weight per perch, 534 lbs.

I could instance many other good crops, but No. 6 was certainly the heaviest which came under our notice; however, the owner of No. 6 crop informed us that he had weighed (for another agricultural society) a crop much better than his own.

In my letter to the Express, 16th Dec., 1839, I stated that it was nothing unusual with the farmers of Lancashire or Cheshire to expend more value on a single acre in manure for turnips or mangel, than the entire produce from the same extent of land was worth in Yorkshire and many other counties. Perhaps, Mr. Editor, some one or other may observe that no *practical* farmer will credit this statement unless they saw the crop

pulled and weighed—not a few perches here and there, but a whole acre. Be that as it may, this attestation is from the pen of a practical man, one who has worked at the various agricultural employments from his boyhood, and commenced farming on his own account at 18 years of age, without a parent or guardian, left entirely to lean on his own perseverance, with pecuniary resources the most trivial. I enter into these particulars, Mr. Editor, to shew you that I have some claim to the appellation of a practical man, and it is some gratification to know that the opinions of farmers on agricultural practice are in some estimation—for it is nothing extraordinary to see and hear their views set at defiance by many of our great luminaries of the present day. (See *Professor Johnson's Lecture on Agricultural Chemistry, delivered at the Durham Farmer's Club.*) In the Express of Dec. 21st, you observe, Sir, in your editorial column, “the improvement of the mind of the cultivator of the soil, so that his operations may be guided by a knowledge of the principles on which they act, instead of looking to mere practical results, will afford the most powerful means of promoting substantial agricultural improvements.” This, Sir, reads very well; but I must observe, nevertheless, that the dependence which farmers place on practical results is, in the paper and date alluded to treated rather lightly; and in answer allow me to observe, that I have read as much as most men on agriculture, both ancient and modern—scientific and practical. Within the last twenty years, I have had the direction of expending many thousand pounds in bringing sterile lands of various character into cultivation; yet when comparing what I have read with what I have seen, most sincerely do I prefer and respect the unerring lessons of careful observation and experience. It is frequently asserted that agriculture and its operations are capable of receiving like aids and revolutions from chemical deduction and philosophic research, as have been rendered to the manufacturing parts of industry by similar investigations; indeed, so common is this belief, that now we cannot read any publication, from a penny journal to a costly periodical, but we shall see the same views on this all engrossing subject reiterated; but for my part, as an humble endeavourer in the good cause of agricultural improvement, I must confess that I have no such expectations. However, we may easily bear with opinions opposed to our own, when we think they originate from an enthusiasm to forward a calling to which we are and ever have been devoted.

It is reported of my Lord Spencer, to have said at the late anniversary of the Smithfield Club, that it was quite as monstrous to say, that a knowledge of the soil and its qualities was absurd, as saying thirty years ago, that steam power could not be used to propel vessels through the water. Now I should consider such a saying, in respect to the soil, as the noble earl alluded to as extravagant knowledge, I suppose to be correct information; whether we can apply every variety of knowledge extensively to our immediate pecuniary advantage or not, is another question. Surely it will be admitted, that we may have correct ideas on some subjects, but at the same time, not much available in any other, than in intellectual consideration—and in the application of steam power to certain purposes, and chemistry to agriculture, there is a vast distant difference—no similitude in the comparison. I write this with all due respect to Lord

Spencer, because, I believe, there is no man more respects truth and candour than that noble earl, whether he is regarded in his once commanding station as a public functionary, or now a private gentleman.

I have said there is no similitude in the comparison; my reasons ought therefore to be required. I will proceed to give them, and first—because, steam power is the result and product of human industry applied to nature's productions, and consequently can be employed with structures of human invention—but not to any extent in progressing or retarding the economy of nature's rule.

Chemistry has indeed wrought a new era in our manufacturing industry—thus, cloth or yarn will now in our times by chemical process be brought to a fancied state of maturity in fewer days than weeks formerly; this enchanting science has done the same in dyeing, printing, and in almost every department where it has been successfully employed. Steam power has wrought wonders, almost we may say it has stretched out the common duration of human life; but for all this, who can suppose seriously, that any human efforts can be introduced with the same purpose and end in nature's province, and thereby give a new direction to her ever unvarying course, which she has hitherto required for maturing those indispensable, on which all animal life depends. My letter is already much longer than first intended; however, being so far advanced on a subject exciting now so much interest and well-deserving every careful explanation, I wish to proceed with a few more remarks:—In the *Athenæum* Journal of English and Foreign Literature and Fine Arts, for October last, I have read an abstract from Professor Leibig's new chemical views relating to agriculture.* This was read by Professor Graham, at the late meeting of the British Association; and in commendation of the work, Dr. Gregory stated, that he had studied Leibig's production, "that in his opinion from this day (Sept. 19, 1840) might be dated a new era in the agricultural art, from the principles established with such sound sagacity, by Professor Leibig." I have read the same over several times, and admit some of Leibig's views are correct, and all are also interesting to the philosophic farmer; but at the same time, I question whether these delicate enquiries can be of much use to the practical man in his wide range of practice; because the principles and proceedings for success on his farm, do not depend on such nice calculations as are required in compounding a physician's prescription—no; his operations must be on a broad and bold scale, having for essential, effectual drainage, where there is superabundant moisture, deep working of his soil, and finally, pulverizing it, always bearing in mind, that twenty-shillings worth of manure properly applied, is of more value than a sovereign. A good farmer will take every possible advantage to perform his labours in good weather and due season; add to this—to crown all his efforts with success—indeed, he must generally estimate his wit at less positive value than his perseverance. But, again to Dr. Gregory and his *new era*,—I mean no offence; still, with every good feeling, we may ask of the learned Doctor, what are the tangible effects we expect *immediate* from the time he made the de-

claration. Will there be one single bushel of wheat added to our next year's crop, solely the consequence of these new discoveries; for my part, I do not expect so much—yet, I am not the least disposed, (even had I the power) to lessen the favourable reception which Professor Leibig's work has met with amongst learned men. These remarks are intended to qualify declarations and expectations unlikely to be realized—not to damp to contempt enquiry; for I can say with truth, that no one could hardly have had more delight in reading productions relative to the economy of the vegetable kingdom than I have had; day after day have I taken Sir Humphrey Davy's lectures on Agricultural Chemistry with me into the fields, there to read when my presence has been required to direct a practice, the theory of which, he in many correct ideas, and always language beautiful, endeavoured to illustrate; and, in concluding, I would wish to introduce an observation once made to me by a venerable Doctor, now living, second to few in good nature, and to none in philosophic acquirements, (Dr. Dalton of Manchester.) "These deep inquiries, however interesting to the curious, are more suited to those who have leisure, the proprietors of the soil;" and in my own humble judgment, not of that imperative importance to the practical man, they are almost universally held to be by the educated classes of the present day. I am, Sir, yours respectfully,

A LANCASHIRE AGRICULTURIST,

Jan. 14, 1841.

NEAR MANCHESTER.

TO MR. MATSON.

DEAR SIR,—I quite agree with you, "that the soil of England is capable of being made to produce twice as much as it now does;" but we have much to *learn* and to *unlearn*, before this can be accomplished. You would very much contribute towards such a desirable result, if you would have the kindness to reply to the following queries, as it is evident there must be something very different in your mode of culture to that used by farmers generally, or you never could produce such heavy crops as you do at Wingham.

I have waited till the busy time of agricultural meetings, &c., was over, before making this request; but now, that we farmers have more time than usual to *read* and to *write*, I hope you will be able to oblige me. I make the application thus publicly, because I am confident your answers will benefit thousands, as much as I am sure they will do—yours, very sincerely,

JOHN MAXWELL TYLDEN.

1. After what crop do you grow turnips?
2. What sorts do you prefer?
3. What is your manner of cultivation, ridge, or drilled, or broadcast?
4. How much manure per acre, and of what kind?
5. What is the nature of the soil of your farm?
6. What is your course of cropping?
7. How often do you plough your ground for turnips, and when?
8. Do you fold, or draw them off to be used in your yards?
9. What crop succeeds turnips?
10. How many acres of turnips do you generally grow, and what do you consider to be the average quantity grown?

You will perceive that these queries principally apply to the turnip crop, but any other information regarding your other crops, wheat especially, will be of the greatest service.

J. M. T.

* In the part referred to, as published in the *Athenæum*, I do not see much that is new; let the inquirer consult Sir Humphrey Davy's *Agricultural Chemistry*.

ON THE EXTENSION OF THE KNOWLEDGE OF SCIENCE IN ITS APPLICATION TO AGRICULTURE.

Articles of the most delicate texture are made, and machinery of the most complicated character is put together by men, whose skill in performing their work is purely mechanical, and who, never occupying their minds in investigating the principle upon which the results which they produce, depend, can never be regarded in any other point of view than as useful animal machines. Whatever be their occupation or pursuit, it would be vain to expect any improvement in it from such men; whilst the mere workman, if he be inclined to reflect, may, by observation and reflection, obtain such an intimate knowledge of the principles upon which his operations are based, as to enable him to effect improvements in the application of the materials which he employs. Information acquired from a record of the experience of others, will, it cannot be doubted, give the possessor of it very superior advantages over him who hath wholly to depend upon his own personal experience, and a lucid explanation of the qualities of materials employed,—of the manner in which any given system works,—in short, to use a familiar phrase, a plain statement of “the why and the wherefore” as regards effects produced, whether applied to nature or art, must materially contribute to promote improvement in the practice of any art, in the pursuit of any occupation. If these remarks are correct, in reference to all other occupations, they are most cogent in their application to agriculture.

There is a *something* in particular soils which renders the effect of the application of lime, in promoting their fertility very great, whilst in some instances, from the absence it is to be presumed of that *something*, it is powerless, and in others it is prejudicial. The same observations apply in reference to the use of bones as a manure. The fertilising effects of Nitrate of Soda have been most satisfactorily proved by the testimony of a great many persons in different parts of the country; but we have reports from some who have used it without the slightest improvement in the produce of the crop to which it was applied. Experience will, doubtless, in the course of time, determine upon what soils Nitrate of Soda may be applied beneficially, as well as those upon which no good result can be expected; but it would be a very great advantage if the particular soils to which it is adapted could be pointed out at once. A farmer may occupy a farm on which there are several soils, varying in character in a greater or less degree. Exercising a due caution, he may try an experiment with Nitrate of Soda upon a moderate scale, and finding the result fully answer his expectation, he may be induced to apply it upon a large scale in the following year. On the second trial it may best suit his arrangements to apply it to land on another part of his farm, where the soil is different, and disappointment and loss may result from its not being adapted to soil of that character. These are cases in which science should step in and aid

practice. We know there are those who contend that agriculture has nothing to expect from science, we are decidedly of the contrary opinion, and we know that many experienced practical farmers are daily becoming converts to our views. We hear constantly of men who justly enjoyed the reputation of being good farmers in their neighbourhood, removing to another part of the country, and there utterly failing in their system of management, and ultimately becoming ruined. This is the consequence of possessing a merely *local practical knowledge*. *Practical knowledge* is absolutely essential to a farmer, but the more science is superadded the more extensively will his knowledge be applicable.

The great question with those who estimate highly the application of science to agriculture, now is to devise the best means by which the knowledge of the sciences which bear upon agriculture can be disseminated. A commencement has been made, and the course which has been adopted should be applied as extensively as possible. Farmers' Clubs afford great facilities for the communication of scientific information through the medium of lectures. Professor Henslow delivered an interesting lecture on the diseases of wheat, at a meeting of the Hadleigh Farmers' Club. Professor Johnston delivered a lecture to the members of the Durham Farmers' Club, and we have read a letter from a correspondent, in which he states “that Mr. Pettinger, surgeon, of Sutton-upon-Trent, Nottinghamshire, delivered a very able lecture on Monday evening, Jan. 4th, to the members of the Carlton Farmers' Club, on the manner in which soil acts in producing or facilitating the germination and growth of plants.”

Mr. Pettinger has taken a step which we think merits the attention of the whole body of the medical profession resident in the country; he has pointed out the means whereby they may greatly increase the important benefits they already confer upon the community, and that too in a mode which will elevate the profession as contributing to improve the minds, and increase the knowledge of the members of the most important class in the country. Chemistry is a science with which all medical men are more or less acquainted. Botany is by no means alien to the profession, and is studied by many of them. The attending lectures, whilst prosecuting their studies, affords them an opportunity of attaining the habit of lecturing. In the commencement of their practice, at least, there are few who have not a considerable portion of spare time. The devotion of a part of that time to the preparation of lectures on chemistry, in its application to agriculture,—on the physiology of plants,—and other such subjects, would not be an unprofitable application of it, even as regards the practice of their profession; and the delivery of lectures before the members of a Farmers' Club, or other meeting composed of individuals of the same class, called together for the especial purpose, would not be an unprofitable or illegitimate mode of displaying the talent of the lecturer. Farmers' Clubs and Agricultural Libraries, must become general throughout the country, and there will be found five or six medical practitioners within the district to which each club extends, so

that were our suggestion adopted, scientific information might be communicated to the farmers upon a most extensive scale, at the hands of gentlemen qualified by having received a professional education. This suggestion may perhaps by some be deemed impracticable; but we do not despair of seeing it adopted, if not generally, at least to a considerable extent.

HADLEIGH FARMERS' CLUB.

FIRST ANNUAL REPORT.

In presenting the first annual report of the Hadleigh Farmers' Club, your committee beg briefly to revert to the origin of its establishment, which resulted from a meeting of several gentlemen on the 2nd of December, 1839; who, seeing their neighbours around forming themselves into societies for the improvement of agriculture, they desired not to be behind, but instrumental in the promotion of so important an object, viewing it as beneficial, not only to the farmer himself but to the community at large; as the interchange of thoughts and practices, and the results of experiments made known, must of themselves tend greatly to advance and disseminate useful information amongst those persons whose science it is to produce the necessaries of life; and while manufactures and commerce have made their rapid strides in improvement in the various branches of their arts, arising in a great measure from their facilities of communication, and eager watchfulness over their respective interests, this all-important body, comparatively speaking, have been quite at a stand-still, if not in the retrograde movement.

A set of rules was proposed, which met the approval of a subsequent meeting, numerously attended, on the 20th of December, when a chairman and other officers were elected for the year ensuing.

Your committee, in reporting the proceedings of this club for the past year, and endeavouring to give an outline of the discussions which have taken place, feel fully aware that nothing *very particular* or new exhibits itself, but that many interesting remarks have been elicited, conducive to mutual improvement.

The first subject discussed was the keeping of farnia horses.

2nd. The effects of lime and salt.

3rd. The relative value of manures.

4th. "On sheep"—the best kind for breeding, and the best for grazing in this neighbourhood.

5th. The advantages of tares, rape, and other green crops for summer feeding and soiling, and their relative value to the land, and stock which are fed upon them.

6th. The best manner of preparing the land so as to ensure a plant, and the best kind of roots for general feeding.

7th. The best time to cut the different grasses for making into hay and stover, and the best manner of managing them in the field, and in the stack.

8th. The best time and mode of cutting the different grain and pulse, and the best method of harvesting the same.

9th. The best manner of preparing and depositing seed wheat, and the merits of the different varieties.

10th. The best method of storing roots for winter feeding.

The first meeting in January, on the subject of keeping farm horses, was entertained by the various modes adopted by different members, the results of which were nearly equal; an opinion was expressed with regard to the number of horses, and the mode of their keep, as depending in some measure upon the soil upon which they had to work, also the better the horses were kept, the value of the manure was so much the greater; and after much discussion the following resolution was agreed to.

"That, allowing five horses to work 100 acres of arable land, each horse could not be kept under 14s. to 15s. per week, during the winter months."

This subject being concluded, the effects of lime and salt were next brought under consideration, upon which Mr. Farrow, of Ipswich, gave much interesting information upon the chemical nature and operation of them upon the soil; several other members stated their experience upon the trials made, which were very beneficial upon light land.

The subject which engaged the attention of the next meeting, in February, was the relative value of manures, on which some members stated many interesting facts, as to the use of saltpetre upon light land; and a valuable statement was made by a member, who had tried bone dust for turnips in comparison with 11 chaldrons of rich compost, which terminated in favour of bone dust; the *cost of production*, and value of turnips, being about 10s. per acre. Kiln dust and wood ashes were highly recommended; the subject was adjourned to obtain further information on many experiments now making by several members.

At the meeting in March, the discussion was upon the different breeds of sheep, and their aptitude to fatten, as adapted to this neighbourhood; this gave rise to a most interesting discussion, which was very important, and much practical information was given. It would occupy too much space to give the evidence in detail; but the pure Southdown were considered the most valuable for breeding, as the Southdown ewe is the foundation upon which to begin, and likewise very hardy. Against this it was urged, the Down and Norfolk ewe, crossed with the Leicester tup, was more profitable, and the sheep better nurses. With regard to the best description for grazing, the general opinion was in favour of the half-bred Down and Leicester, as a cross strengthens the breed for grazing. It was also urged that sheep, possessing a cross between the Down and Norfolk, as three quarters Down and one quarter Norfolk, was a good kind of sheep for grazing; but after various statements, the following resolution was agreed to:—

"That for breeding, the pure Southdown is the most valuable; and for grazing, the most profitable is the half-bred Down and Leicester."

In April, the chairman having received a communication from the Royal Agricultural Society, relative to the remedies to be applied for arresting the progress of the disease now prevalent amongst cattle, it was read by the Secretary; and a member proposed that the subject which stood for discussion that evening should be waived for a short time, and those members who had suffered from the disease, should give their opinion upon it, with their method of treatment, and the Secretary to transmit them, with any other information he could collect, coupled with a vote of thanks from the club, to the Royal Agricultural Society for their

circular, and requesting some more copies, which they should be happy to purchase.

The general opinion was, that bleeding and gentle purgatives were most essential, and a dressing for the feet, made of half a pound of soft soap, half a pound of resin, half a pound of Venice turpentine, to be applied every other day.

The Royal Society acknowledged the communication, and sent fifty copies of the circular gratis.

The subject of green cropping was afterwards introduced, and after a long discussion respecting the advantages and disadvantages attendant upon sowing green crops, it was resolved unanimously :—

“That tares are the most advantageous green crop, especially on heavy land, for feeding and soiling, and generally beneficial to both land and stock.”

The next meeting in May, was engaged in the discussion of the best manner of preparing the land so as to ensure a plant, and the best kind of roots for feeding stock.

The member who introduced the subject, spoke very highly of the use of Biddell's scarifier, as a material assistance in preparing the land, which was fully supported by such members as had made a trial of that implement, but they being few, the general practical information was limited.

Ridging the land was the unanimous opinion as best, for the cultivation of beet, and some members maintained the same opinion in the cultivation of Swede turnips; and after much discussion the following resolution was agreed to, for preparing the land :—

“Cleaning it as soon as possible after the corn is removed, by scarifying with Biddell's scarifier, and ploughing the last month previous to sowing the seed; not to plough the land, but keep it clean by scarifying and harrowing, so as not to expose it to the sun. In preparing the land for beet root, all that it requires should be performed in the autumn, and put on the ridge before Christmas.”

The resolutions respecting the best sorts were as follows :—

For early feed, the Norfolk white turnip.

For winter feed, the purple top Swede.

For spring feed, in yards and sheds, red or purple beet; and the best adapted for ewes and lambs, the green round turnip.

At the monthly meeting in June, the best time to cut the different grasses, for making into hay and stover, and the best manner of managing them in the field, and on the stack—was brought forward for discussion; the member introducing it, recommending the practice of beginning to cut clover as soon as the heads are upon full bloom, or just as they begin to change colour, as much quality is lost if allowed to stand longer after cutting; to be once turned, and then got upon the cock as soon as possible.

Another opinion was entertained, recommending it to lay upon the swathe a sufficient time to get thoroughly made, then to turn it, and cart it the same day without cocking, as there is less loss of leaf; some members strongly recommended the use of salt when it is put upon the stack, (about a peck to the load) and also to be well shaken, and not put together by fork-fulls: the stack afterwards raked into shape. This subject having been closed, the following resolution was agreed to :—

“The best time to cut clover is as soon as the forward or first heads begin to change in colour; to lift it as soon as sufficiently made upon the top;

the next day turn it, and put upon the cock; the cocks before carting to be well shaken and then carted to the stack. Grass when cut, to be well shaken, and put upon the grass cock as soon as possible, and made without exposing it to the sun more than necessary.”

The subject which engaged the attention of the eighth meeting, held in July, was the best manner of harvesting the different grains and pulse. Only one member was present who had practised to any extent mowing wheat; his evidence went to prove the advantage of mowing over reaping. First, as to getting the work done much quicker, consequently cheaper. Secondly, getting an extra quantity of straw, which is more valuable than haulm. Thirdly, in a fickle harvest, there was less risk from standing so long a period in the field, as from the fact of the sheaves not being tied so tightly, they became dry much quicker, the air circulating more freely through them. Another advantage is, as soon as the wheat is carted, the land is ready for preparing any future crop, as tares, rye, turnips, &c., or any thing required. An interesting discussion was entered into upon different plans, and the following resolution was agreed to :—

“That the best mode be adjourned to some future meeting, to obtain further evidence from other members who were likely to try mowing in the ensuing harvest; and the best time for cutting the different grain, and most advantageous to the farmer, is to allow it to get ripe, and generally beneficial to turn barley before it is carted.”

August being harvest month, no meeting took place.

In September, the best manner of preparing and depositing seed wheat, came before the meeting for discussion, when a variety of preparations were stated to have been practised, some members using arsenic, others hot water and lime; but a solution of blue vitriol appeared to be the plan most generally adopted; the efficacy of this plan having been tested by the use of bladdered stock.

The subject being an important one, and the discussion not having been fully gone into, especially upon the latter part, viz., “the depositing the seed,”—it was adjourned to the next meeting, and a proposition made to consider, in addition, “the merits of the different varieties.”

In October, the adjourned discussion of preparing and depositing seed wheat, with the addition, to consider the merits of the different varieties, came before the meeting, and striking testimony was adduced in favour of blue vitriol. One pound of blue vitriol, dissolved in one pail of water. The method recommended, is to mix in a dipping tub, sufficient quantity to wet a coomb of wheat, then stir it about well for a minute or two, and after having skimmed all refuse and light kernels, drain the liquor off, and put it upon the floor, when in a few hours it is fit for use; but should it occur that the weather will not permit its immediate use, it is recommended to break down the heap and spread it out thinly. On “depositing the seed,” some diversity of opinion prevailed, whether by drill or dibble was the preferable plan; also upon the depth of putting in the seed, and the quantity of seed used; the drill appeared to be the method more generally adopted for planting wheat, and to use a moderate quantity of seed, say two bushels per acre. Most members were inclined to put the seed in to the depth of two or three inches. Several members recommended very strongly, where it was practicable, to get the land ploughed up as early as possible, (say a month or six weeks before

planting) as having a very beneficial effect upon the produce. Many different varieties were spoken very highly of. The Pettit wheat, and the Copdock red, were general favourites as red wheats; and the Essex white, and Brown's Chevalier, were generally approved; but the results of the same variety of wheats upon different soils seemed so much at variance, that it was impossible to decide upon the merits of any one kind for universal adoption. The debate being closed, the following resolution was agreed to:—

"That the best manner of preparing seed wheat is in a solution of blue vitriol, not less than one pound of vitriol to 2 pails of water. With regard to the manner of planting, dibbling is considered to be the most productive on light lands, and drilling upon mixed soil and heavy land."

At the last meeting in November, an excellent and splendid shew of roots took place, which were the admiration of all members present. Messrs. Matthews, Green, and Sallows officiated as judges, who gave universal satisfaction.

The meeting was occupied in the discussion of the best method of storing the same. Many plans were mentioned, but the following mode was preferred by the majority of the meeting:—Make long clamps from two to three yards wide, lay the roots regularly on the outside in shape of a roof about five or six feet high, cover them up well with straw, and afterwards with earth about eight inches thick, leaving the top open for a month, without any earth, to allow the evaporation to escape. A member strongly recommended having all the roots laid in order, as they were more certain of keeping, and an opinion was expressed, recommending in the spring uncovering them of the earth, and leaving the straw upon them. As the best method of preserving the Swede turnip for feeding in the yard, it was urged that clamping them as beet, with the top merely wrung off, was a good plan, as they remained as fresh as when carted from the field; and where turnips were consumed upon the land, to pull them up in January, and cover them with a little earth, prevented the turnips drawing the land, and the quality of the root was preserved. The following resolution was then agreed to:—

"That the best plan of preserving beet and Swedes appears to be, by clamping them up, and covering them with earth a few inches thick, leaving the clamp open in places for a time to allow the heat to escape."

Having thus briefly given an account of the resolutions and proceedings of each meeting which has taken place, your committee have also the pleasing intelligence to record a great accession of members since its first monthly meeting, which was then 36; it now contains 85 members. A Library has been formed, containing many valuable works on agricultural subjects, for some of which your committee have also to express, on behalf of the society, their grateful acknowledgments to those gentlemen who have so kindly presented them.

Your committee have also examined the receipts and disbursements for the past year, which leave a balance of *£l. 15s. 2d.* in the treasurer's hands, which they recommend to be applied in the further purchase of books, and binding up the magazines and periodicals taken by the club.

Your committee are unwilling to close their report without availing themselves of the opportunity of expressing their grateful sense of the valuable services rendered by your Chairman, and by the gentlemen who have from time to time brought forward the subjects for discussion; and they

would suggest the propriety of adopting a similar proceeding to that which some neighbouring clubs have followed to advantage—of determining beforehand the subjects for consideration of the club for six or more succeeding meetings—and if at the same time one or two gentlemen would consent to introduce their own general views on each question, it is the opinion of the committee, that it would materially conduce, not only to the interest of the meeting by insuring a fair and full opening of the subject, but it would at the same time afford members the opportunity of preparing and arranging for each question, the evidence and opinions, they may have to lay before it.

In their short experience of the advantages arising from institutions of this character, your committee can but rejoice in the growing appreciation of their value, which prevails respecting them; and they heartily concur in the sentiment expressed in the report of the Ipswich Club, that by means of these societies spreading generally over the face of the kingdom, and communicating with each other, the whole country will ultimately become a general scene of experimental farms, united in one common interest, and in which the information of each shall become distributed, and thus minister to the permanent advantage of all.

(For the Committee,)

W. GRIMWADE, Jun., Secretary.

LETTER BY LORD WESTERN,

ADDRESSED TO THE PRESIDENT OF THE
CHELMSFORD AND ESSEX AGRICULTURAL
SOCIETY.

MY DEAR SIR,—I have been in the practice the last few years of annually addressing the President of our Society, in order to give the result of a system of farming somewhat different from that pursued by the generality of my brother farmers in this county, as far at least as respects one most important branch of agriculture, viz., the putting the seed wheat into the ground. The deposition of the seed is confessedly a subject calculated to excite the most anxious attention of every intelligent cultivator; and hence the continued discussions upon it, and the great diversity of opinion and of methods taken for the purpose. Broadcast is the oldest and most general, but even here differences prevail—the number of casts, the mode of casting, sowing under the furrow sometimes, as well as on the top; then we have drilling and dibbling; the former is the more prevalent of the two, and in this mode the distance between the rows has been and is a subject of controversy. After all these points are settled, the quantity of seed is also a matter of great dispute; there is no doubt that good crops, proportioned to the land, may be grown under all these different modes, if the general management is good; but the real point to aim at is the discovery of the best way to ensure a crop one year with another. It is the misfortune, or rather difficulty, we have to contend with in any attempt to improve, that years of experience are necessary to arrive at and establish the value of any particular system. The conflict of opinions renders it so difficult to come at the truth. I would not give up altogether the light which may be let in by a variety of comparative experiments upon a small scale; but I cannot help fearing they may occasionally mislead, and they can never be decisive. Experiments to prove comparatively merit must, to be effectual, be upon a scale sufficiently extensive to obviate the consequences of mistake, negligence, or prejudice. All young farmers, in their first start, are very fond of petty experiments; they generally fancy they must make some grand discovery—they must distinguish themselves in some way before they are versed in the rudiments of science, and expect

to establish their fame by these petty means. Burke, whose profound knowledge of every branch of science was perhaps unrivalled, and who was himself a practical farmer, always said, that the science of agriculture required more *experience*, more *patience* and *perseverance*, more *foresight*, more *care* and *caution*, more *devoted attention*, than any other. I subscribe to his opinion, and think that without those qualities and advantages it is impossible for a man to be a proficient in the art; I will, at the same time, admit that there are exceptions to this rule, and a genius will sometimes strike out new lights in a science of which the individual possessing such genius may not have been a regular student; and it has ever been my anxious desire to encourage genius as far as lay in my power, wherever it was distinctly shown to exist. I have recently taken an active part and very warm interest in two singular instances of inventive genius rising above science: the first, that of the screw to propel vessels instead of the paddle. I have no hesitation in declaring my perfect conviction, that the screw will sooner or later supersede the paddle for every purpose of steam-navigation, and more particularly ships of war.

The inventor, Mr. Frederick Smith, is the son of a farmer near Hythe, and was himself bred to farming business.* The other case to which I allude is the discovery of a very superior system of suspension-bridge building, by Mr. Dredge; and it is founded upon so correct and just a principle, that it must eventually be adopted, and triumph over the prejudice which, I am sorry to say, it has to contend with: Mr. Dredge is a brewer at Bath.†

I cannot therefore deny that improvements may be struck out even in the science of agriculture by genius, and their utility established; but the instances will be very rare—they are indeed rare in other sciences. It is scarcely necessary for me to assure you, that I have not the most remote idea of any claim to genius in any deviation I have made from the general system of farming pursued by my neighbours; instead of aspiring to genius, or aiming at originality, the plan I have adopted has been to look far and wide, everywhere, for practical lights, and the established methods followed by the most enlightened men in the best cultivated countries, and to adopt such as appear to me best suited to all circumstances of season and of soil. On that principle it is, and upon knowledge and information so acquired, that I have come to a conclusion in favour of a large quantity of seed and wide drilling. I found this practice general in a part of Norfolk in which there are many superior and intelligent farmers, without mentioning the Earl of Leicester, and upon their authority I adopted, and on my own experience continue steadily to pursue, this practice. I place my rows nine inches apart, and I do not hesitate to recommend others to do the same, *subject always to deviation, under the discretion of the cultivators of different soils*; it is as a general practice I pursue and recommend it, not an universal. It must be at least a negative proof of the value of the system, that I have grown five quar-

ters an acre all round, upon near a hundred acres, the last four years. I have thrashed 7½ quarters of this year's growth from a field of twelve acres, (6 qrs. an acre) and I have done this repeatedly. I say it is at all events a negative proof of the value of the system, that in four successive years it has not prevented as large a growth of wheat as farmers can in general expect to realize; and I think it is not too much to say, that to this practice my success is in some degree attributable. But it is in bad seasons that its beneficial influence is especially found. It is in the security of a plant, nor less in the strength which it gives to the early shoot to struggle against its numerous enemies: we have had but one year of defective plant since I adopted it, and then I had not a single failure, while nearly all my neighbours around me suffered severely; when the plant first appears above ground, the number of ends protect each other, and the very early growth is more rapid.

The greater number of roots get a stronger hold in the ground, so that if rabbits or other vermin bite off the blades, they will not be so much loosened, and consequently not so subject afterwards to be root-fallen, which is certainly a grievous misfortune when it occurs, and which is not unfrequent. Then the slug, the grub, the wire-worm, are less able to destroy it. A correspondent writes as follows, after declaring himself a convert to my opinion in favour of a large quantity of seed:—"These thin plants from a small quantity of seed must be more subject to *mildew* than a thick plant is—the inclemency of the weather is more likely to injure a thin than a thick plant—the thin plant is more liable to the ravages of insects, such as the slug, the wire-worm, the grub of every description. I have this year examined many holes of set wheat, and have found two or three corns destroyed by some kind of insect after they had chitted. If wheat is thin and afterwards branches out very strong in the spring, the strong branches draw so much virtue from the stem, that many of the ears will be small and hardly bring the grain to perfection."

It may be said, that everybody will acknowledge the advantage of a full plant, and that it may be obtained by other means than those I recommend; and so it may, but the failures are many, in strong wet lands particularly. I have suffered severely from failure and loss of plant, before I adopted my present plan of sowing wheat.

The objection made to this system, and the little condemnatory experiments I have seen reported, have not, I confess, had much weight with me. I can well imagine circumstances which may give an occasional advantage to rows of five or six inches apart—for instance, in case of a very dry season, like the last, where the land was benefitted by being more covered and shaded,—but in general wheat requires air, and sun, and light, and the facility given by the wider rows, of effectually hoeing the land if necessary, is an advantage entitled to some consideration. I say nothing of the horse-hoe, which is a very difficult and dangerous operation, not possible if the drilling is not straight. I have got mine straight enough, but I would attempt nothing beyond a mere spike on the narrowest possible hoe, which, loosening the ground, enables the hand hoe to be worked more easily and effectively, and the spike or very narrow hoe may comparatively be worked by horses with little danger; it is my ambition, however, so to farm that the hoeing of wheat may never be necessary.

I will now state to you my growth of last year, which is short of five quarters per acre but by two pecks only; to this I add the growth of the seven preceding years, making together eight, and which

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* I think the Admiralty culpably tardy in the adoption of the screw; the superiority of it has been practically shown in the different voyages of the *Archimedes*, and in her trials against paddle-propelled vessels, besides which many of the first naval characters have given decisive evidence in favour of the screw. Mr. Smith should have a national reward. I know that many pretend to have known the power of the screw, but of what use their knowledge, if they did not practice it. Mr. Smith alone, by his genius, energy, and courage, has made it available for public service.

† Engineers say they have known the principle upon which Mr. Dredge proceeds, but they never carried it out to any practicable purpose.

I divide into two periods of four years each; the average growth of the first four amounts to 4 qrs. 1 bush. 1 pk.; the average of the last four 5 qrs. 0 bush. 2 pks.—The details are as follow:—

	A.	R.	P.	Qrs.	Bl.	Per Acre.	Qs.	Bl.	Pk.
1832-3 ..	101	0	0	485	0	4 6 1	4	6	1
1833-4 ..	88	0	0	306	7	3 3 3	3	3	3
1834-5 ..	103	1	0	414	3	4 0 1	4	0	1
1835-6 ..	88	0	0	395	3	4 2 3	4	2	3
Average of the first four years. . .						4 1 1	4	1	1
1836-7 ..	94	0	0	497	0	5 2 3	5	2	3
1837-8 ..	75	0	0	376	2	5 0 0	5	0	0
1838-9 ..	103	2	0	525	0	5 0 2	5	0	2
1839-40 ..	109	2	0	544	6	4 7 2	4	7	2
Average of the last four years. . . .						5 0 2	5	0	2

The largely increased quantity of the last four years may certainly be attributable, in a considerable degree, to the favourable seasons we have experienced during that period; but I cannot give more than half to the seasons, and with that liberal allowance, I think I may fairly put the other half to the credit of improved farming. I am happy to say that the spirit of improvement with which I am inspired, evidently pervades the whole agricultural community, and that similar results in a greater or less degree have been realized. I do not like to make estimates of the annual growth of wheat, and the number of acres devoted to it, but the lowest estimate of the number of acres would give upon such increased production a monstrous total.

I entreat the Anti Corn-law gentlemen to reflect upon the resources we thus possess within ourselves, and the incalculable advantages which arise out of the means employed to draw them forth: the increased demand for productive labour, which an improved and anxious farming gives over the languid efforts which a subdued spirit induces, is incredible. As to the monopoly which is said to be given us by the corn laws, I distinctly answer that it calls forth a more effective competition at home, than would a competition with the foreigners, if admitted freely to our markets: more energetic efforts are now conspicuous through the empire than perhaps ever were known, and lamentable would be the consequences, and fearful the responsibility of Ministers, if by their means that spirit should be broken down; they should pause and consider long before they attempt to introduce speculative legislation to interfere with, and perhaps break up, established interests and engagements of such unbounded extent and importance, and which might produce such accumulated mischief and individual ruin.

It is certainly possible that circumstances may exist which may warrant a change of policy, grievances may be shown that may render it necessary; but I deny that any such exist that can justify the subjection of British Agriculture and the substitution of foreign for our national produce: such, however, is obviously, I may say confessedly, the object of our philosophers and many of our statesmen of the present day. Let us never weary in our resistance to the plans of these reckless politicians: they are plausible, strong in oratory, have popular topics to work upon, but they are *deceptive*, little solicitous to discover the truth, and rash enough to force upon the country any measure, however dangerous, if they can make their favourite theories triumph over the plain good sense of the wiser and more considerate portion of the public.

I am, my dear Sir, yours, faithful and obedient,
Felix Hall, Dec. 26, 1840. WESTERN.

ON BURNING THE SOIL FOR TURNIPS.

SIR,—Having been a constant reader of your valuable magazine for some time, I never recollect seeing any observations on a plan now very much adopted in some parts of Wiltshire and Gloucestershire, called *Stifle Burning*. The way in which it is managed is generally by ploughing the fallows across, and the couch being dragged and worked to the surface, it is raked together and lighted with a good deal of straw, being put in the heaps; afterwards the soil is shovelled on the fires, to the depth of two or three inches, which in a short time burns completely through.

As practical results are more convincing than theoretical notions, and to prove that the opinion now fast gaining ground is erroneous, that burning injures the soil, the best crops of turnips and Swedes have this season been grown on this plan. Farmers who have followed this method for several years declare, that the succeeding crops, are superior to what they were formerly, before they tried this plan. It is much to be regretted that some persons, having a pretension to a knowledge of agricultural chemistry, should so far have influenced some landed proprietors against burning, as to cause them to prohibit it altogether on their estates, to the very great injury of the tenant. It is my opinion, and also of others more experienced than myself, that if this privilege of burning is set aside, many of the poor farms in this county would not be worth more than three-fourths of their present value to the occupier.

I am, Sir, your obedient servant,
Wiltshire, Jan. 5, 1841. A YOUNG FARMER.

NITRATE OF SODA.

SIR,—On the 25th of April last, I sowed a ridge in a field of wheat with Nitrate of Soda, $1\frac{1}{2}$ cwt. per acre, the ridge adjoining with Saltpetre, 1 cwt. 14 lbs. per acre, the ridges on each side of them receiving no manure; the same plan was adopted on the same day in another wheatfield. The field No 1, is a gravelly soil; No. 2, a wet sand, both were fallowed the preceding year. The following is the result:—

No. 1.

	Produce per acre.			Increase per acre.			Wght. per B.
	Bush.	Gall.	Qrts.	Bush.	Gall.	Qrts.	lbs.
Without Manure ..	22	2	..	..	..	..	62
Dressed with Soda	26	3	1	4	1	1	62
Petre dressed with	25	5	1	2	3	..	62
Salt	23	2	1	..	..	..	62
Without Manure ..	23	2	1	..	..	..	62

No. 2.

	Produce per acre.			Increase per acre.			Wght. per B.
	Bush.	Gall.	Qrts.	Bush.	Gall.	Qrts.	lbs.
Without Manure ..	18	..	1	..	..	..	61
Dressed with Soda	28	2	3	10	2	3	62
Petre dressed with	26	3	..	7	4	1	61
Salt	18	6	3	..	..	..	61
Without Manure ..	18	6	3	..	..	..	61

I remain, very faithfully yours,
A FRIEND TO AGRICULTURAL IMPROVEMENT.

ON DRAINING—LECTURES ON SCIENTIFIC SUBJECTS—AND THE TURNIP QUESTION.

SIR,—I have waited two weeks to see whether Mr. Smith would or would not notice the queries of your correspondent, the "Staffordshire Farmer"; and seeing that he has not done so, I beg to make a few remarks on the subject, which, if they do not, as I am quite sure they cannot, answer the querist's purpose so well as a reply from Mr. Smith would have done, may yet tend, in some small measure, to help him out of the difficulty which he proposes.

I have seen, and have minutely examined Mr. Smith's farm at Deanston, and while I can speak in the highest possible terms of all his improvements, I cannot say a word in favour of his *ditches*, for I believe he has not one upon his farm. Your correspondent may therefore safely conclude, in the absence of any direct information from Mr. Smith, that that gentleman's opinion is decidedly in favour of *main drains*. His practice is, as the "Staffordshire Farmer" might have learned from the pamphlet to which he refers, to run a main drain "along the bottom of the chief hollow or valley of the grounds, where the whole or greater portion of the drains can be led into it. If any lesser hollows occur in the field, they must also have their proportional mains or leaders."

"There should also be a cross submain at the bottom of every field, or stretch of drains, to receive the water from all the parallel drains, &c. *Open cuts or ditches*, either as mains or submains, should never, except from necessity, be adopted, being apt to get filled with mud and grass, by which water is thrown back into the drains, and chokes them, &c., &c."

So far your correspondent must consider that Mr. Smith's directions are clear and explicit, and that it is superfluous for any one having Mr. Smith's pamphlet, to ask his *opinion* upon the subject of *main drains*.

But, supposing a case where it is decided not to be either practicable or desirable to get rid of ditches, I should incline to think that, where land regularly slopes to a ditch, the plan of making each drain independent of the rest is preferable. This is rarely the case, however, and therefore great care must always be bestowed in setting out the submains as tributary outfalls.

I am truly happy to hear that the "Staffordshire Farmer" and his friends are *agreed* on the all-important points which he had mentioned, viz., depth of drains, materials to be used, manner of filling up, &c. I feel a deep interest in everything that relates to *draining* at this moment, inasmuch as I am preparing for the press some remarks on the subject, and in consequence, would ask the above gentlemen, as it does not seem quite clear, whether they are *agreed among themselves*, or do they subscribe to Mr. Smith's opinion on those points? I shall be glad to hear that the latter is the fact, as, unfortunately, there are too many drainers in the present day, who fancy that no *draining* on clay land can do any good, if it be more than from ten to thirteen inches below the surface. If I mistake not, this will be found to be a *fatal error*.

As your correspondent appears to set a proper value on Mr. Smith's opinions, and as he possesses that gentleman's pamphlet, I sincerely hope that he has followed his example, and *carried out* his system of "thorough draining," with subsoil ploughing, trenching, &c. If he have, I for one shall feel

greatly obliged by his communicating through your valuable paper, the results of his various operations; and I promise him in return all the assistance, either privately or through your widely-extended pages, which my small stock of knowledge and experience will enable me to render.

On the last point referred to by the "Staffordshire Farmer," and which I had well nigh overlooked, Mr. Smith has given his opinion, as lately as 1840, in the sixth edition of his valuable "Remarks." He says—"I am still of opinion that small stones form the best filling for drains, both as to efficiency and permanency, and are the cheapest wherever stones are plentiful."

As a little information on another subject may be acceptable to you, I send you a brief report of the proceedings of the Carlton-on-Trent Farmers' Club, at their meeting on Monday last. After the annual business, such as re-electing the officers, &c., was over, a very able lecture on the nature and properties of soils, and the way in which they act in the production of vegetable matter, was delivered by G. Pottinger, Esq., surgeon, of Sutton-upon-Trent. As it is intended to bring the substance of Mr. P.'s remarks before the public, I shall only say here, that they were distinguished by great research, and a very profound acquaintance with the whole subject. A chemical analysis of the different manures was given, which could not fail to be of great use to the farmers present.

Bearing on the turnip question, which is now under discussion in your paper, I conclude with adding that a small bet was made by Mr. John Esam, a spirited agriculturist, who is a member of the above club, that he would next year grow fifty tons per acre (without top or bottom) of, I think, the White Globe.

I am, sir, your's truly,

Collingham, Jan. 6.

J. Wiser.

TARPORLEY FARMERS' CLUB. — Questions for Discussion:—

1st.—If cheese-making can be dispensed with on Sunday without detriment to the farmer, what is the best course to adopt?

2nd.—What is the best mode of ventilating cow houses?

3rd.—What is the best and most profitable mode of managing a clay land farm?

4th.—What plough is the best for the neighbouring district?

5th.—Will not land become poor by constant grazing?

6th.—What are the advantages of applying nitrate of soda to corn and other crops; when should it be sown, and at what rate per acre?

7th.—What is the cheapest and best method of wintering cart horses, and the general stock of a dairy farm?

THE FARMER'S ALMANAC.—We particularly recommend to our agricultural readers an exceedingly useful little work which has just been published under the above title. It has been got up under the care of Mr. Shaw, late secretary to the Royal Agricultural Society of England, Editor of the Farmer's Magazine, and of Mr. Cuthbert W. Johnson, the author of several Agricultural Essays, which have received prizes from the Royal Agricultural Society of England. It contains an immense mass of information on almost every subject connected both with the science and the practice of agriculture, and it cannot fail to secure a very large circulation among all classes of agricultural readers.—*Westmoreland Gazette*.

THEORY AND PRACTICE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—It is not often any of your instructive papers are looked over without noticing more than one "palpable hit" against that much abused word poor THEORY. It is generally placed in direct opposition to Practice, whereas that is only its follower. No man is an agriculturist without having more or less recourse to *theory*. Let us examine the real meaning of that term. It is derived from the Greek word *theoria*, which signifies to see, in other senses to look forward—to consider for the future—to plan or devise; hence the English word THEORY, which bears all these meanings. Now, who ever managed or cropped land without "looking forward" to ascertain, as well as he could, and "considering and devising" which was the best course to render it most productive? Who ever bred stock without "considering" which was the best male to put to the female? It is then, the handmaid, and not the opponent of practice, though too often made so by those who use words without being aware of their real intent, or as a common slur against their superiors in understanding. It is true the products of "theory" may be sometimes extravagant, when not controlled by a proper share of judgment and experience; but this extreme applies to all sorts of men, whether or not they have opportunities of reducing, as mentioned above, the "theory of farming," and the "theory of breeding" to absolute PRACTICE.

This latter word needs no definition. There is, doubtless, a good deal to be learned by practising the art of agriculture; but then, as in forming a good "theory," so does it require previous education and capabilities to benefit much by it. Were it not so, the labourer, who is always a greater practitioner than his master, would soon outstrip him in knowledge, as the keeper is generally a better shot than his lord.

If mere farming would teach a man this useful art, how came it that—except in an instance or two—so many thousand tillers of the land should have left it, until within these last twenty years, so unimproved as it was, and it may be said as it now is? There can be little reason to think otherwise than that an undue weight is given to *practice*, as heretofore, if not at present constituted, provided the agriculturist has not that necessary preparation for the employment he follows, so as to enable him to prepare a good theory, and make just observations and inferences from all that happens to him. This can only be done by the aid of SCIENCE.

Strictly speaking, this word (from *scio*, *scire*, *scirus*, knowing) means to know to a certainty—to be assured of an event or result to come, as of one that is past (unless prevented by some very unusual causes); as, for instance, by the science of astronomy, we know the "sun will rule by day, and the moon by night;"—of *geography*, that if we keep on sailing eastward, we shall come to the same point from whence we started;—of *natural history*, that if we put a bulb or seed in the ground, it will grow, and that like produces like;—of *Geology*, that the soil is composed chiefly of three primitive earths mixed together; that no vegetable will grow in either of them separately, and that a proportionate admixture of them is necessary for the proper sustentation of plants according to their kind;—and from the science of *chemistry*, with its requisite analyses, we become acquainted with the sorts of

food those plants most delight in, search after them in various articles other than that of common manure, so as to supply its deficiency; and *know assuredly*, from the experiments of Sir Humphrey Davy and others, that every kind of food always has entered, and ever will enter into the roots of plants only in a fluid or gaseous state. These, then, are some of the advantages of SCIENCE to agriculture, though many more important ones as regards their adaptation to practice or profit, are omitted for want of space and time. I would, however, wish to put poor THEORY on its proper footing, and rescue it from being a "byeword and a scoff," in all conversations.—I am, Sir, yours, &c.,

Burford, Jan. 14.

H. JENNETT.

As an illustration of the foregoing, it may be mentioned, there is a book called "The Theory and Practice of medicine." The first is to be learned before the other is adopted. It is practising medicine without a knowledge of its theory, which in that instance constitutes quackery.

IMPORTS OF FOREIGN WOOL INTO LIVERPOOL.

TOTAL IMPORTS FROM 1829 TO 1840.

	1829.	1830.	1831.	1832.	1833.	1834.
Foreign	3915	2582	4042	4305	6480	23447
Irish	1005	2314	3673	1909	3507	3630
Scotch	2504	18329	15308	19263	22 68	20373
English.....	1195	2280	1801	2340	3825	2168
	1835.	1836.	1837.	1838.	1839.	1840.
Foreign	22815	47163	43304	49178	50417	56977
Irish	5631	5530	3291	5642	3758	4765
Scotch	21529	21551	12924	17768	12985	13561
English.....	2100	1944	1405	2460	1944	2451

The following is a copy of a circular just issued by Messrs. Dawson and Hance, the wool brokers:—

"The gloomy state of business which prevailed at the date of our last annual circular, and which we expressed our fears would not give place to improved demand and higher prices for some months, continued without revival till August, when a slight reaction was perceptible by the prices realized at the London sales, and which, we are glad to say, have gradually continued to improve up to the present period.

"We estimate the advance at about 3d. per lb. on the middle and better qualities both of clothing and combing foreign wools, as compared with the same period of 1839; but with respect to the superfine qualities, we have to repeat our remarks of last year, viz., that they seem almost superseded by the next lower classes of wools, and have not improved either in demand or price if of above 2s. value. In wools under 12d. value, we can quote no material fluctuation, with the exception of Peruvian and Italian, which descriptions we think are at present disproportionately depressed, and in both we look for improvement ere long.

"The severe and long-continued pressure in the money market, appears to have produced less effect upon consumption than on prices, which the prudence of both holders and buyers has kept on the whole very steady in the face of light stocks of saleable clean wools, and which, if not still exerted till this market is replenished, will result in an advance on such descriptions the moment an average business recommences. We trust we shall not be considered sanguine in expressing our impression that spring will bring with it a more active demand than we have for some time experienced, and that the consumption of wool in the manufacturing districts now nearly an average one, will become larger and more remunerating both to consumers and importers than in 1840."

ON THE RECENT EPIDEMIC AMONG CATTLE AND SWINE

IN THE COUNTY OF CORNWALL.

TO THE EDITOR OF THE WEST BRITON.

SIR,—The pestiferous epidemic that has been making such destructive havoc among cattle, sheep, and swine, in the eastern counties, has just made its appearance in Cornwall. Until the commencement of this month, we were, as far as I am aware, entirely free from it; and there is every reason to believe that it was first introduced by some cattle purchased at the last St. Austell fair, which came from some of the eastern counties. In several instances, I have traced the disease to cattle purchased at that fair. This fact I consider to be sufficient evidence, to place its contagious nature beyond dispute; at all events, it is enough to warn the farmer against purchasing any strange cattle, and introducing them amongst his herds.

The disease is first ushered in by a cold fit, manifested by a slight erection of the coat, and coldness of the extremities; with frequent shifting of the limbs, and a diminution of appetite.—The cold fit soon passes off; and indeed so quickly that it generally escapes observation.—It is immediately followed by what is termed the hot fit, when the coat resumes its natural appearance, the roots of the horns are generally warm, the mouth presents a slight increase of saliva, the nose becomes dry, the pulse is increased to seventy beats in a minute, and the bowels are slightly constipated. If the animal is examined at this stage, the tongue, upper lip, and membrane at the extremity of the nose, are found blistered; and the feet are likewise affected in a similar manner. Should proper remedies be not now employed, the vesication increases, the tongue becomes swollen, and sometimes partly hangs out of the mouth, with a discharge of seropurulent fluid having a disagreeable smell; and the animal is prevented from taking its proper supply of food. By this time, which will be about the third day of the attack, the animal assumes a wretched appearance, looking exceedingly empty, the coat partially erected, the head drooping, the eyes sunken, and generally lying down, in consequence of extreme tenderness in the feet. The bowels become more constipated, and the faeces are generally covered with a dark brown coat.

The proper treatment of the disease consists in first administering a dose of purgative medicine, according to the strength and age of the animal. I have found that one pound of glauber salts, and from two to four ounces of sulphur, mixed with gruel, is sufficient for the purpose. If the symptoms warrant the use of the lancet, from a gallon to six quarts of blood may be drawn, in the early stages of the disease. The blisters in the mouth should be washed with a strong solution of chloride of lime, and the diseased part of the feet dressed with a saturated solution of blue vitriol. The animal should be comfortably housed, have dry clean litter spread twice in the day, and every precaution should be used to prevent communication between the infected cattle and the healthy ones on the farm. Should there be debility, accompanied with low fever, after the animal has been freely purged, give small doses of the nitrous spirit of ether, mixed with gruel;—an ounce of this medicine is sufficient for a dose, which may be repeated for several days afterwards.

With regard to swine, they suffer exceedingly in the feet,—in some instances that I have seen, the hoof has completely separated. Their feet and tongues should be treated like those of cattle, and doses of sulphur and salts given according to their strength and age. In most cases they will eat this medicine with their food.

I believe we have not yet arrived at the cause of this dreadful malady, although many opinions have been advanced on the subject. But as it is probable that much useful information may be gathered from the history of this epidemic in our country, I beg to solicit from farmers whose cattle have been or may be affected, answers to the following queries at their earliest convenience:—

- 1st. What was the first appearance of the epidemic?
- 2nd. Had the diseased cattle any communication with other stock?
- 3rd. Did they travel along the road on which infected animals had travelled?
- 4th. Did any person that had attended on other diseased animals, come in contact with those animals?
- 5th. What were the earliest symptoms? Did the disease appear primarily in the feet or mouth?
- 6th. What was the duration of the disease?—and what the treatment pursued?

I remain, Sir, your most obedient servant,

W. KARREK.

Truro, Dec. 22, 1840.

WESTERN AUSTRALIA:—The *Perth Gazette* (a colonial paper of the 20th of June), gives the following account of a sheep speculation, which was commenced in 1835, and just closed; the editor vouches for its accuracy, and declares that it is rather under than over stated:—"In 1835, 212 breeding-sheep and 12 lambs were purchased from Mr. Henty at the cost of 535*l.* 12*s.* One-third has been deducted from the proceeds of the sale of the wool to meet expenses of washing, shearing, clipping, &c., and no account is taken of 50 wethers consumed for the use of the farm."

RESULT OF A SPECULATION IN SHEEP.

Dr.			
1837 Jan.	Original cost of sheep in July, 1835, and expenses to this date	£565	12 0
1838	Shepherd's expenses	30	0 0
1839	Ditto	80	0 0
1840	Ditto	40	0 0
Total cost and expenses		£715	12 0
Cr.			
1835	By wool and wethers	£20	0 0
1836	Wool	37	0 0
	59 ewe lambs and one ram	95	0 0
	60 old ewes	180	0 0
1837	Wool	44	14 0
	Wethers	120	0 0
1838	Wool	50	3 0
	Wethers	90	0 0
1839	Wool	68	10 0
	Wethers	100	0 0
	Ewe-hogs	205	0 0
1840	4 ewes	20	0 0
	2 ewe-hogs	6	0 0
	208 ewes and lambs	1310	8 0
	11 drop ewes	44	0 0
	88 ewe-hogs	352	0 0
	110 wether-hogs on hand	220	0 0
Total Cr.		£2962	5 10
Deducting cost and expenses as above		715	12 0
Leaves a profit of		£2247	13 10

VEGETABLE EXISTENCE.—A seed of a Royal Scotch Thistle was planted after having been laid up for more than 16 years. It sprang, vegetated, and produced a plant, the foliage of which was resplendently beautiful. Sensitive plants are said to retain the virtue of germination from 30 to 40 years; and oats even to 1000! The olive reascitates from the smallest fibre of the root. The mustard and wild radish will remain for many years without germinating; after which, if turned up, they will grow. But a still more wonderful circumstance was stated by Mr. Houlton, in his introductory Lecture, as Professor of Botany to the Medico-Botanical Society:—"A bulbous root which was found in the hand of a mummy, in which situation it had been for 2000 years, germinated on exposure to the atmosphere, though, when discovered, it was in appearance perfectly dry. The root was subsequently put in the ground, when it grew readily and with vigour!"

THE TURNIP QUESTION.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I am pleased to find that the Turnip question continues to excite so much attention in your columns; for as you justly observed last week, "the turnip must be considered the foundation of that improved system of husbandry which has been the means of increasing the produce of grain" (and of meat you might have added,) "in this country, so as to keep pace with the growing demand of the population, except in a few unfavourable seasons."

It will be well thoroughly to sift this question, now that public attention is so strongly directed to it; for it is clear that those who have been hitherto satisfied with twenty tons per acre, have, making every allowance for difference in the quality of land, much to learn from those who can grow forty tons; and if you will allow your paper to be made the arena of what may be called a vast Farmers' Club, and if those who possess evidence and information bearing on the question, will freely produce it, the best known system of root tillage, (for to cultivation must the difference be chiefly owing,) may be decided upon, and universally adopted. It was a knowledge of the great difference in weight of what is called a good crop of roots in different counties—a difference not existing in a good crop of grain—that dictated my letter to the *Bury Post*, which you copied into the *Express* on the 14th ult., and in which I attributed part of the deficiency to difference in variety of seed. In proof of this I stated that I then had a field planted alternately with two different kinds of Swedes, one of which I thought would beat the other from twenty to thirty per cent. I have since taken up and carefully weighed the above crop, and the result fully bears out my previous opinion.

No experiment could be more fairly tried than this was, and it is interesting not only as showing the great difference in produce from different varieties on the same land with similar cultivation; but also as an additional proof of the discrepancy in the weight of a good crop in different districts. I wish I had a sufficient knowledge of soils to describe accurately that of the field in which the turnips alluded to were grown; I will give the best account I can of it. It is a deep, rich loam, sufficiently heavy to require draining, and sufficiently light to work freely; the subsoil is clay, but laying much further from the surface than is general with the clay subsoils of this district, neither is it so tenacious, as the drains will not stand well without tiles. It is well suited to the growth of barley, clover, and beans; for wheat it requires clay, or otherwise it grows too much straw, and is very kind for turnips—from this imperfect account your readers will judge that it is a good piece of land; in fact, it has the character of being not only the best in the parish, but equal to any in the district. It has been in my cultivation only four years, previous to which it was not indulged with manure as it now is, but my neighbour, who has known it for sixteen years, has frequently told me that he never saw a bad crop of any kind on it. Having endeavoured to describe the soil on which the turnips grew, I will now add the cultivation for them. The field in 1839 had a crop of wheat after a trefoil and ryegrass layer, in the previous year, mowed for hay. I find by reference to my field book, that the stubble was turned in on the 11th November, (having been previously looked over with weeders to take out any speargrass, or other weeds); that it was ploughed again (turned back) on the 8th February; that in the

beginning of April it was ploughed across and harrowed, and afterwards was cultivated with repeated harrowings and rollings, to clean and pulverize it. On the 6th of May, thirty carts, equal to about twenty-five loads per acre of good farm-yard manure was set on, and ploughed in immediately, also across; the land rolled down and left, both for the manure to incorporate, and also to encourage the growth of any annuals not destroyed by the previous cultivation.

On the 22nd and 23rd June, the land was drawn out in ten-furrow work of ninety inches, ploughed, rolled to keep in the moisture, and on the following day the seed was drilled, four rows on the ten-furrow ridge, the cups in the drill for each row being fed with different seed; and as this part of the operation was done by myself, I can speak to its accuracy. The first and third rows were drilled with Skirving's purple Swede, the second with Matson's yellow, and the fourth with Matson's purple; thus, each had precisely an equal chance, because, in the next ridge when the drill returned, Matson's were first and third, and Skirving's second and fourth; the rows of turnips were twenty inches apart, and fifteen inches on each side of the outer row, to the centre of the furrow.

The plants came up well, were carefully hoed out at a distance of fourteen inches from each other, and were afterwards horse-hoed and received the usual summer cultivation; they were never attacked by the fly, nor received any checks, except from the dry weather, which, from the nature of the soil affected them less than it did the general crop of turnips in the neighbourhood, and they entirely escaped the mildew, which in the month of September so seriously affected the early sown turnips.

Thus, everything promised well for a great crop, and I consider it equal, if not superior to any I ever grew. The turnips were taken up in the first week in December, each row by itself, carefully cleaned, topped and tailed, so that the weight obtained was the actual amount of profitable food. I did not weigh an acre, but a smaller portion of the field, selecting a fair average, which, from the regularity of plant, I had no difficulty in doing. I confess that it would be always more satisfactory to bring the whole acre to the scale, but the trouble of so doing is great, and an average portion of it, fairly selected, is sufficient for most purposes.

	Tons. Cwt. Qrs. lbs.			
One acre of Matson's green-topped Swede weighed.....	19	2	3	12
One acre of Matson's purple, do..	19	14	1	4
One acre of Skirving's purple, do..	25	11	1	20
The average weight of Matson's two	19	8	2	8
Short of Skirving's by.....	6	2	3	12

Mr. Matson's turnips were of beautiful quality, the yellow-topped in particular, with which I won a prize at a local sweepstakes; but if I might venture to give a hint to so experienced a root grower as Mr. Matson, I should say that they have been rather over cultivated, and have scarcely sufficient top; a coarse-necked large topped turnip no one would like; but there is another extreme, and query if Mr. Matson's celebrated stock be not approaching it? This with all due humility!

I have not given this statement with any view of showing the superiority of one kind over another, but of proving the immense difference which may exist in the produce of different varieties; and chiefly also to show the still greater discrepancy

between a great crop in one district, and a great crop in another.

I have been tedious in the details of soil, cultivation, &c., because I am persuaded that to errors in the latter must the difference in crop be traced, and because it is on that point I wish to be instructed. The piece of land in question, being far above the average of the neighbourhood in quality, and having peculiar advantages as regards manure, does, I have little doubt, grow as much corn per acre as the land in Keut, on which such heavy crops of roots are produced. Why should it not yield an equal weight of turnips? The answer, to me, is obvious; because it is not properly cultivated for this crop, so as to call forth all its powers. I am aware that Mr. Matson's system of autumn cultivation is preferable, because it is very successfully practised on a wet stubborn soil near me—and indeed for beet is generally adopted; but I cannot attribute all the difference to that. Another objection which will probably be made, I will allude to, viz., the late sowing; here local experience alone can avail, and evidence to any extent can be produced, that on those lands in this district which are kind to turnips, you can never succeed better than to sow your Swedes in the middle of June, the nearer the longest day the better, and your common turnips in the last week of the same month. On heavy soils, uncongenial to the growth of roots, they are usually sown a month earlier. I must now, Sir, apologize for occupying so much of your space; my object has been, by setting an example of exposing what I feel to be deficient cultivation, to obtain knowledge on this interesting subject, and also to add my mite of information towards settling the knotty point at present in dispute amongst root-growers. Believe me,

Sir, your obedient servant,

RUSTICUS.

P.S. As Mr. Matson thinks me an "apt scholar," I hope, should he not have already replied to Mr. Tylden's enquiries in this week's *Express*, that he will take my "rude cultivation" as his text, and I can assure him most honestly, that if he will teach, his pupil will endeavour not to forfeit the good opinion he has expressed of his aptitude to learn. Seriously, I shall be gratified by any criticisms upon it, either from him, or from your Lancashire correspondent.

Sir,—Having been struck with surprise that any intelligent agriculturist of the present day, could for a moment doubt Mr. Matson's assertion, that forty tons of turnips have been raised on an acre of his farm, I bethought me of a statement in my possession, drawn up some years since by Mr. James Gordon, one of our most spirited agriculturists in this quarter, and to whom the country is deeply indebted for the great improvement which that gentleman effected in turnipseed, after much labour and expense. Mr. Gordon is now upwards of eighty years of age; but still takes as much interest as ever in all agricultural improvements.

From the statement under his hand, which I now enclose, you will observe that fifty-four tons have been produced per acre; this, however, be it remembered is the Scottish acre—still, allowing for the difference, you have a produce exceeding forty tons; indeed, now-a-days, few of our farmers in this quarter would think forty-eight tons per Scots acre (equal to forty English), anything to brag of.

These statements, I doubt not, will be confirmed by many farmers, North of the Tweed.

Yours, most obediently,

AMICUS.

N.B.—We subjoin this statement.

DALE'S HYBRID—SPLENDID CROP.

We have repeatedly called attention to Dale's Hybrid, a turnip which combines in a great degree the qualities of the Globe and Rutabaga, and are glad to learn that its culture is gradually extending. In proof of this, we make the following quotation from a letter just received from Sanquhar:—

"A gentleman in this neighbourhood has a crop of Dale's Hybrid, which, from the experiments already made, will yield a return of not less than 25 tons per acre. Nothing like equalling or approaching to this has been known in this country. The bulbs are at once large and solid; and two of them have been sent to Messrs. P. Lawson and Son, to be shown as an agricultural curiosity."—*Dumfries Courier*. The above is inserted in the *Aberdeen Herald* of 30th November, 1834.

"Gigantic turnip carried to the Scotsman Office, Edinburgh, and of the White Globe species, and afterwards deposited in Mr. Lawson's Museum in Edinburgh, as a remarkable and rare vegetable curiosity. Dimensions of the said turnip—it measures cylindrically 43 inches, and in transverse circumference, 58½ inches—weight, 24 lb. 10 oz."—(See *Aberdeen Herald* of the 6th December, 1834.)

The following is an account of gigantic turnips, the produce of the farm of Drinnies, at Pitfour, of the Green-topped Yellow species, crop 1834, cultivated by Mr. John Murray, and originally propagated by Mr. James Gordon, in Mains of Orrok, by artificial means. One turnip weighed 28 lbs., another turnip weighed 12 lb., two weighed 20 lb. each, and other two turnips weighed 19 lbs. each. The cause of Mr. Murray having ascertained the weight of a few of the turnips singly, was this, per Mr. Murray's letter. "A gentleman farmer in the parish of New Deer, observing to me that he had very fine turnips on his farm, in said parish, which would weigh 12 lbs. regretted that he had not taken some of them to the show at Aberdeen. I observed to him, that I would produce to him turnips that would weigh from 20 lbs. to 24 lbs. each. He laid a wager that I could not. The consequence was, that six turnips were taken from the field, and weighed separately, and their weights were as before stated. (Signed) JOHN MURRAY."

And upon the 17th day of December, 1834, the weight of the said field of turnips, at Drinnies, per acre, was ascertained, and which amounted to 37 tons, 15 cwt. The land which produced this crop of turnips got no more than a fair allowance of dung.

And, upon the said 17th day of December, 1834, the weight of some Rutabaga, and Turnips, belonging to Mr. William Mundie, in Mains of Bruzie, in the district of Buchan, were ascertained, per acre, and found to weigh as after stated:—

	Tons.	Cwts.	Qrs.	Lbs.	
Rutabaga	54	5	2	24	per acre.
Red-topped yellow turnip	54	5	2	24	do.
Golden Yellow turnip	46	14	1	4	do.
Green-topped Yellow Turnip	32	11	1	20	do.

The land which produced the said Rutabaga and Turnips, in Mains of Bruzie, got no more than a

fair allowance of dung; and the turnips were all raised from the new kinds, originally propagated by artificial means by Mr. James Gordon, in Mains of Orrok. Mr. Mundie's drills were thicker than Mr. Murray's drills, as 5 to 6.—The above accounts are accompanied with ample certificates.

The persons who attended the measuring of the land, and weighing of the turnips, in the cases before mentioned, at Drinnies and Mains of Bruxie, state in writing, that the turnips had lost their leaves, and the bulbs were in some degree wasted, before the time of weighing the turnips.

"Dale's Hybrid was only brought to the perfection which it is now said to possess, by doubly impregnating this turnip with Rutabaga in the year 1827 or 1828."—(See Mr. Lawson's printed pamphlet on this subject.)

It may be proper to state and bring into view some other great crops of turnips, of the white fleshed varieties, propagated by the said Mr. James Gordon, in Mains of Orrok, by artificial means, which yield a most abundant produce on every kind of soil, and are particularly adapted for the thin dry gravelly lands on the banks of the river Dee.

In the year 1814, George Thomson, Esq., the great land valuator, applied to Mr. Gordon for the seed of one of these white-fleshed kinds, which he sowed in the lands of Milltimber of Culter, in the parish of Peterculter, a farm lying on the side of the river Dee; and Mr. Thomson let some acres of the turnips, from the seed which he procured from the said James Gordon, crop 1814, to two eminent fleshers in Aberdeen—namely Messrs. Williamson and Reid, at the rate of 12*l.* sterling the acre, to be consumed on the farm. Mr. Thomson let part of this field of turnips at the rate of 25*l.* per acre, to be carried off the farm. These are much higher prices than is commonly paid for turnips in Aberdeenshire.

And Mr. John Stuart, a respectable and well informed agriculturist, in Nether Anguston of Culter, in the said parish, in consequence of the prodigious crop raised by Mr. Thomson, applied to Mr. Gordon, in Mains of Orrok, for three different sorts of the seed of this newly-propagated white-fleshed varieties, which Mr. Stuart sowed on his farm of Nether Anguston, which is thin dry soil, not far distant from the side of the river Dee, crop 1815. Mr. Stuart ascertained the weight per acre of all these three different sorts of turnips, late in the winter of 1815-16, (a very severe season) after the turnips had lost their leaves, and a great decline in the bulbs; yet the produce was most extraordinary. One sort weighed at the rate of sixty-six tons per acre; another, fifty-one tons, seventeen hundred weight, sixteen pounds, per acre; and the third kind weighed at the rate of fifty tons, eight hundred weight, one quarter, and twelve pounds per acre.

The two last-mentioned cases of Mr. Thomson and Mr. Stuart's produce of turnips are also supported by written vouchers.

And, at a later period, Miss Wilson of Auchinleck, in the parish of Skene, let some acres of the Green-topped Yellow Turnip, one of the new varieties of turnips, propagated by the said James Gordon, to two respectable fleshers, to be consumed on the farm, at the rate of 14*l.* sterling, per acre.

Aberdeen, 8th Jan.

JAS. GORDON.

SIR,—Observing in your paper of January 4th, a letter from Mr. Matson, advertising to the growth of a crop of Swede turnips on his farm, to the great weight of 40 tons per acre, I cannot help making the re-

mark that great doubt may exist in any person's mind, as to any land being capable of producing such a crop, and I should not have ventured to introduce a line into any public journal, had I not felt a joint interest with other agriculturists on this subject.

Mr. Matson offers a wager of 50*l.*, that he will produce a similar weight on an acre of land this year; now, the Norfolk farmers, who I may truly say bestow the greatest exertions to secure this valuable crop, have been sadly thwarted by seasons, and the position of the county may act greatly against them, but I must add that the same uncertainty may exist in Mr. Matson's county, and that his confidence of growing a similar crop this year, may from like reasons, meet with disappointment. Alluding to Norfolk farmers, as I am possessed of land generally considered to be good, I suppose I must include myself amongst them, and I will pass over the various observations made by Mr. Matson, of their not availing themselves of proper instructions to secure the turnip crop, and I will only add, that I shall be happy to have the opportunity of participating in Mr. Matson's extraordinary discovery of production on this head, and this, possibly, may only be effected by his consent to send me a small portion of his seed (which I will appoint payment for at any place Mr. Matson may name), and I will preserve it with the strictest care, and the produce therefrom I will make report at a future day, through your valuable paper. Trusting these few lines may claim insertion therein, I remain, your obedient servant,

RICHARD CRAWSHAY, JUNR.

Rockland, St. Mary, Norwich,
Jan. 13th, 1841.

TO SIR JOHN MAXWELL TYLDEN.

SIR,—I knew that you had left the field of fame for patrimonial fields, and turned your good sword into a ploughshare; but I did not know that a part of the same trusty steel had been turned into a turnip-cutter, until I read the letter you did me the honour of addressing to me in the *Mark Lane Express*—so that in war or peace your arms are employed in good service.

Nothing is more encouraging than to hear gentlemen of high standing avow their belief, that England can double her agricultural produce, because nothing is more likely to hasten its realization. There is, indeed, much to *unlearn*, for prejudice is a weed of early growth, with deep and tough roots; so that nothing but improving cultivation will choke it, or prevent successional crops. If, in answering your queries, I fall short of your expectations, it may set abler pens a-going, and that would be doing no small service; as, witness the turnip question, which, partly in consequence of my giving tongue, has received more attention of late than ever it did, since its formal introduction to hotted mutton and caper-sauce.

1. After Wheat generally—not always.

2. The purple-top variety for quantity and quality; although the common varieties are better suited to very poor soils, and, if not sown too early, will better brave the winter, and are excellent food for ewes and lambs.

3. I invariably drill on the plain surface: I nevertheless think most favourably of the ridge system, so successfully pursued at Wye by Captain Davis, who has never, I believe, missed growing from my seed a heavy crop of Swedes. He is decidedly the most skilful and best cultivator within my experience or knowledge, and I have seen on his farm the best and heaviest crops I ever saw. I

have often heard him say, that he generally grows from 35 to 45 tons per statute acre, and he has kindly given me permission to state it publicly. Captain Davis's character as a farmer stands high, and as a gentleman it is of the highest.

4. Forty tons and upwards of well decomposed farm-yard manure (and on the burning sands a small quantity of bone-dust drilled in with the seed), the proportion of course being regulated by the quality and condition of the land. Everything I can collect to increase or improve this manure is thrown into the yard, well trampled by sheep and cattle previous to its being carted out.

5. Varies from excessive heavy lands to a burning sand.

6. Wheat every other year on some land, but I observe no invariable course of cropping, and I should be sorry to have my hands so tied up. There may be certain soils whereon restrictions might be advisable, but not, I think, in this part of the county, where the differences of soil are so very great. In many cases, to be forced to adhere to a particular rotation, would be a serious bar to improvement on the part of an enterprising tenant.

7. The weather being particularly fine after the last harvest, I broadshared the land for turnips, as well as other lands, four times over—but this applies to only last year: I generally broadshare all my lands twice over, let them be ever so clean—well harrowed it, well rolled it, and then carted the couch grass and the roots of the stubble into a lump in the field to decompose, by repeated turnings, into a fine vegetable mould. The land is then ploughed up very deep, and harrowed and rolled into such a state, as not to knead or become too dry. I am of opinion, that if land be in a good state, the less it is ploughed the better; the dung may be carted out in May or June, at all events in dry weather, and that the land should be put in a fit state for drilling in the seeds towards the end of June or thereaway. My purple variety does not require sowing so soon as the coarser sorts, for it is similar to the new Leicester sheep in coming to early maturity.

8. From my usual heavy crop, I cart off half to feed in pastures and yards, the other half is fed off upon the land.

9. Barley is best hereabouts, in other parts wheat is sown, but many farmers grow oats, where the soils are less kindly for barley.

10. From ten to twenty acres; the latter part of this question would be more fair to put after the tithes are finally commuted. Besides it is only when one has the best of landlords, that it is quite safe to speak out on all occasions, but as I am most fortunate in this respect, I have no objection to say that I consider the average produce per acre to be from twenty-five to thirty tons. As you mention wheat, I have already trespassed too long on your patience, but if you wish it, I will state to you the system I adopt on my sandy lands wherein I have doubled and trebled my crops of wheat, and eradicated the poppy, mountain flax, yellow and blue buddle, three latter entirely, and the former scarcely one to be seen. I am, Sir, your most obedient servant,

ROBERT MATSON.

Wingham, Jan. 15.

are transplanted with success; for we must be allowed to say, that the success contemplated by the transplanters does not always attend this measure. The practice was old even in Evelyn's time. It was revived, or rather perhaps brought into particular notice by the late Sir H. Stewart, who, living in a cold moist climate, possessed great advantages for performing this operation, so flattering to men of wealth, with effect. On the whole, however, we do not think it is worth much in England; and certainly it is of little or no avail in dry and warm climates like that of France. In all countries it may be practised occasionally for extraordinary purposes; and it has been done for some years past, in such a manner as to excite our utmost astonishment and admiration, by Mr. Barron, at the Earl of Harrington's, at Elvaston Castle, near Derby. Mr. Barron, like a wise man, has chiefly confined his operations to trees which spread their roots along the surface, and moreover which have numerous fibrous roots confined within a little space. He has transplanted many Spruce Firs nearly 100 feet in height; and scores of Yew trees from thirty feet to fifty feet in height, and from 50 to 200 years of age. Of the Spruce Firs scarcely any have failed, and of the numerous Yews there is not, we believe, an instance of one having died. Some of them have been brought from ten, twenty, and thirty miles distance, with masses of earth containing all the roots; and they have been set on the surface of the ground and the earth heaped up around them, so as to give the trees the appearance of standing on little hills, and not a single stake, or rope, or other means has been used for preventing them from being blown over by the wind. The tall Spruce Firs have, however, been kept in their places by guy ropes. In no place that we know of in England has the transplanting of large trees been carried to such an extent, and with such complete success. Some of our readers may know of other places where the same practice has been equally extensive and successful; and, if so, this is the season of the year that they ought to let us hear from them.—*Gardener's Gazette*, No. 18.

CURIOUS MODE OF CATCHING CROWS IN ITALY.—A traveller gives the following remarkable account of crow-shooting in Italy.—Being called up (says the author) early in the morning, a few days after Christmas, we proceeded with two servants about a mile from the city of Milan, and entered a large meadow covered with hoar-frost, when my friends conducted me to a cottage a little on one side of the meadow, where we found five or six peasants, with a good fire, several fowling-pieces, and abundance of ammunition in readiness. Being told that everything was prepared, we drank coffee, till the peasants, who had left us about an hour, returned and informed us we might proceed as soon as we pleased. We, however, advanced no farther than the porch of the house, where, as we waited some time without the appearance of any crows, I was eager to fire at them, but my friend checked my ardour. "Stay," said he, they will descend presently, and approach so near to us that we may shoot them without trouble." Soon after, to my utter astonishment, I observed them stop their course all at once, take several circuits round the meadow, and afterwards descend, a few at a time, upon the ground upon which we were waiting their appearance. Not knowing the secret, my curiosity still increased, especially as I observed that the whole of them not only descended, but that they seemed to have stationed themselves as it were in various parts of the field. But this was not all, for upon a closer inspection I found their heads were absolutely fixed in the ground, from whence after a struggle of some duration I saw them successively rising, and apparently with a white cap on their heads, which I soon perceived to be made of strong cartridge paper. It was now that this comedy commenced, and began to take a tragical turn; for the crows, to liberate themselves, putting themselves in a number of laughable attitudes, brought forward the peasants, who, clapping their hands, and setting up a loud cry, the motion of the crows became the most

ON TRANSPLANTING LARGE TREES.—The article of Mr. Billington on Hedgerow Timber, reminds us that this is the season in which large trees are generally transplanted—at all events in which they

confused imaginable. Flight, if such an awkward movement deserve the name, was in all directions, striking against each other with such force as frequently to bring them to the ground. It should be observed that the noise of their talons scratching upon the thick paper caps that inclosed their heads, had no small effect, till in the end, taking to our fire-arms, we were employed near an hour in shooting them; at the termination of which I was informed by my friends that holes being purposely dug in the ground, and filled with paper of a conical form, the narrow extremities of the latter containing each a piece of raw meat, it was the smell of the meat that brought the crows to the spot. It is further to be observed, that the inside of this cap was copiously larded with bird-lime, attached so much the closer by the pressure of the crows' heads after the meat, that it was impossible for them to disengage themselves.

THE EPIDEMIC AMONGST CATTLE, AND THE GROWTH OF TURNIPS.

Kendal Fair, November 8th, is the time I usually purchase what cattle I may want to make up my winter feeding stock—thirty-five to forty in number for beef for the spring markets; but the day previous to the fair being in Kendal, seeing the dealers drive their cattle through the town to pasture, I perceived several with great quantities of saliva falling from their mouths, and some lame; I then determined to purchase none, I only wanted about fifteen to make up my usual quantity; however, the epidemic was the cause of a very bad market for the sellers; and I was induced to purchase two cows, which I learned afterwards were taken out of a drove in a field in which was the epidemic; as a proof, fifteen were so bad that they could not be exposed for sale in the market. I let my two continue ten days in some aftermath I had near Kendal; and then, not daring to bring them home amongst my other cattle, I sent them by a circuitous route to an out-barn and cow-house, where was only a labourer's cow; they continued there doing well, till this week, and have now taken the epidemic. After Kendal Fair, I was a little fearful of taking the epidemic amongst my cattle. I took what I considered a prudent precaution with my stock; I gave all my cattle, except the cows in-calf, a dose of Epsom salts, the summer calves, 4 oz., the yearlings, $\frac{1}{2}$ lb., and all of a greater age, 1 lb. each, in about three quarts to four quarts of luke-warm water to each pound of salts; the greater quantity of water given in the salts the better, as the whole stomach of the animal then gets its effects. In about a fortnight afterwards I repeated the dose, but in rather less quantities; my cattle continued in excellent health till about the 14th December, when my favourite bull (Westmoreland) appeared stiff in his limbs. I ordered him a pound of salts, the next day his hind heels cracked; they were bound up with common sheep's salve, such as is used in this wet and mountainous district to salve the sheep with, which is kept as a standing stock; it is made in the proportion of 16 lbs. of butter to a gallon of tar; the bull never blistered on his tongue or mouth, and was quite well in a few days; another bull began about three days afterwards, with dreadful tenderness in his fore feet, ulcerated round the hoofs, and a suppuration under the heels, with sore mouth and blistered tongue, quitting an extraordinary quantity of white frothy saliva; he had the same medicine given him, and is now as

healthy as possible. I have, since the 14th of December, had about sixty in the disease; those which had the salts, two doses each, previous to taking the epidemic, suffered by far the least, and speedily recovered. After the two first, I gave as medicine to about a dozen young cattle, by recommendation of a friend, the following dose:— $\frac{1}{2}$ lb. salts, three teaspoonsful of saltpetre, four teaspoonsful of ginger, and four teaspoonsful of carbonate of soda: this mode I discontinued; I perceived it took more hold of the cattle than I liked, as they had it three times a day. I then continued to give them only the salts, namely:—1 lb. to a full grown beast, $\frac{1}{2}$ lb. to a yearling, and four to six ounces to a calf, according to size and constitution, and rubbing round and between the hoofs the following mixture—sheep salve four lbs., with $\frac{1}{2}$ lb. red precipitate mixed therewith. All have done and are doing remarkably well, except two or three which are suffering from their feet; these are very fat oxen, but are recovering fast. Some of the milch cows suffered in the udder, but by fomentations of warm water, I think now all are got round; and during the time the cows were affected, the milk was boiled for the calves, also for family use—but, be it remembered, the milk was not used from those which had the udder swollen till after it was reduced to its natural state. As food, the best hay in small quantities, sliced turnips, and also for the cows and fat oxen, linseed and oatmeal-gruel; some of the cattle are very fond of it; their appetite is generally good after the second day's illness; but when the mouth and tongue are sore, it is not good to give them too much hay: turnips are better, as ruminating animals chew their cud, and owing to the soreness of the mouth they are prevented doing so for a few days; above all, keep them clean with dry litter, wash their mouths with salt and water, and their feet with warm water once a day, previous to rubbing the sheep-salve on their feet. After a few of my cattle had taken the epidemic and promised to do so well towards recovery, I then felt anxious for my others taking it, and my wish at my home-farm has been pretty well realized. Fat cattle and milch cows suffer the most; of course the condition is reduced, but after they get rid of it, I am persuaded they grow very fast; if a second dose is requisite, salts are a safe medicine. I believe many cattle have suffered by having too much medicine administered; salt in troughs or laid before them in lumps to lick is desirable. I have a lot of bulls and bullocks at a farm about four miles distance, which have not yet taken it; this severe frosty weather may be a means of clearing it away; it is extremely desirable that the cattle sheds or houses should be well ventilated; lean sheep soon recover, but fat sheep suffer much, and lose a deal of flesh; salt to lick is useful. Pigs will take salts with their food—a fortunate circumstance, as they are unruly members to administer medicine to.

A word respecting Mr. Matson's turnip crops: he may get 40 tons on an acre, but what will his average be, and what proportion of turnips has he in proportion to his white crop? Mr. Ogilvie, I know, is a first-rate turnip grower, and at the Manchester agricultural meeting, I heard the weight he had produced; but in awarding prizes for turnips, the quality of the soil ought always to be taken into consideration if merit is to be rewarded; I believe Mr. Ogilvie acted strictly to the rules of the society. A Mr. Long talks of 60 tons an acre, in Scotland and he was much applauded, but by whom?

I am sure not by practical agriculturists; making such assertions does no good; he had better mention the identical place where they are growing; who will believe that 30 acres in Ireland average 50 tons an acre; it is an old saying, that some will shoot with a long bow, and I think it is now verified. A word for myself: within the last 25 years I have won no less than fifteen silver cups from Kendal and Lancaster Agricultural Societies, for turnip premiums; the greatest crop I ever had was 37 tons the acre, and that on only a few acres (Swedes). I began with 10 acres, and have by degrees extended the growth of turnips to 50 acres and upwards. I have turnips on all kinds of soils that are dry, from the Hazell loam to alluvial and reclaimed peat bog; the latter will grow the greatest weight, but my crop altogether I believe never averaged 25 tons the acre, statute measure. I have used nearly all kinds of manure, but I will venture to say, that if you manure your land to excess, that you will lose more by the lodging of the grain crops, which follow the turnips, than you gain by your extraordinary turnip crop; however, farmers are not very guilty of over-tilling, yet there are instances, where pride has prompted. A few solitary instances of over-production must not be a guide; there is not the least doubt but the product of the soil may be such by improved cultivation, as to yield more than sufficient, both in bread and animal food, for the consumption of our increasing population; if we get but remunerating prices, we can do a deal, but let us not go to extremes at once. See what Mr. Blacker has done in Ireland—see what a kind and generous landlord, with an intelligent and enlightened agent, can accomplish on those small holdings, yet such a plan would never be practically advantageous in England. Before I conclude, I will give Mr. Matson this advice—not to bet any wagers, either as to weight of turnips or size; he runs a great risk of losing both, I assure him; Skirving's Swedes are bad to beat; at Liverpool agricultural meeting in 1839, Mr. Skirving gave me three Swedes, one weighed 27lbs., one 23½lbs., and one 22½lbs. I am not aware that I have said any thing that Mr. Matson can be offended at; I am convinced he is a very excellent farmer, and I beg to conclude by wishing him every success.

Mr. Editor, my fire has got low, and the clock near 12; it only now remains for me to say, that the perusal of the *Mark Lane Express* affords both amusement and instruction in agricultural pursuits. I am, Sir, your obedient servant,

Sizergh, near Kendal, Jan. 8. W. ELLISON.

The subjoined is a statement of the system of management pursued by a farmer who had been the winner of a prize for the best cultivated farm, both from the Liverpool and Manchester Agricultural Societies, written by himself:—

PREMIUM SECOND FOR THE BEST CULTIVATED FARM.—This farm is 160 statute acres, and when we inspected it, was bearing the following crops, viz., 6½ acres in pasture, 24 acres in meadow land, 48 acres wheat after potatoes, 6½ acres oats, 6½ acres clover and vetches used for stall feeding, 35 acres potatoes, 2 acres turnips and carrots, 1 acre mangrel, 3½ acres orchard and gardens. This claimant's customary rotation is potatoes, wheat and clover; turnips are sown after vetches taken off in stall-feeding. This claimant has 28½ acres clover, which he has mown for hay; the same land he intends mowing a second time for hay also.

The stock on this farm consists of 12 farm-horses, and in summer these are kept in the stable on green food, and employed for no other purposes but cultivating this farm, carrying to market and bringing manure. Claimant's other stock are, 7 colts, 6 dairy cows, 4 heifers, and 11 pigs. This farm is a light soil, approaching to peat, and nearly—acres of it have been reclaimed from a bog; within the last 20 years, the whole farm has been effectually drained with tiles and bricks at claimant's own cost. Claimant marls 10 or 12 acres every year, and buys never less than 1,000 tons of horse dung, 1,000 tons of small dung, night soil, &c., besides boiled bones 10 tons; these manures he mixes together, and applies to different crops, except meadow land, which is covered over every other year with another compost to improve the light texture of the soil. The wheat we saw growing is all as good as it could be, and these observations apply to his potatoe crops, his clover, oats, &c.; indeed to every other description of produce on this farm. The ditches and water courses are cleaned out annually, and the fences trimmed in the neatest manner. The roads, gates, stiles, orchard and garden attracted the inspector's notice particularly, on account of their excellent condition. Taking claimant's farm altogether, it is highly complimentary to the industry, sound judgment, and enterprise of its tenant; and we beg further to observe, that in our opinion this land does not admit of further improvement.

THE ADVANTAGES OF LIFE ASSURANCE.

(FROM THE LONDON JOURNAL OF COMMERCE.)

We have before observed, that the benefit of provision, by life assurance, must be self-evident, and we feel it our province to point out two principles which should guide all parties in assuring their lives. These are *safety and economy*.

The large sums by way of bonus, added to the sum assured by some of the old offices—for instance, the Equitable—are so enormous, as at once to convince us, that the premiums charged by this society and other institutions, whose rates are similar, are most *unnecessarily high*. The premiums charged by the Equitable office are, according to the law of mortality shown by the Northampton tables, at 3 per cent. interest, and the additions made to the early policies have, in some cases, amounted to 600 per cent. This excess of premium has happily now become obsolete, and a true premium based upon actual experience is offered to the public, at which assurances can be safely and economically made.

The experience of the Equitable assurance office, and also the law of mortality shown by Mr. Finlayson, in his reports to the House of Commons, derived from government life annuitants and tontines, afford data from which tables are calculated, showing the true value of life—affording every security, and allowing the assurer at once the benefit of assurance, at really the lowest possible rate, and giving them the *immediate benefit* of a low premium. Other offices are established which require the purchase of future reduced premiums, by a payment for a certain number of years of proportionately high ones; but it appears to us that, having obtained the true and lowest premium, it is fairer, or, at least, will meet the convenience of the majority of assurers, to afford them the means of at once realizing the object of assurance at the lowest safe rate, rather than requiring them to purchase at a high cost, a deferred, and, in some cases, an uncertain benefit—as offices offering these advantages, by their rules, require that the assurance should have been in existence a certain number of years before it is entitled either to bonus or reduction of premium.

[This is exactly the principle upon which the premiums charged by the Farmers' Insurance Institution are calculated.—Ed.]

THE HOOSE IN CALVES.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—With pleasure I take the first opportunity, through the valuable leaves of your excellent Magazine, to fulfil the request of an individual who signs himself "A Norfolk Steward," touching the treatment of the hoose in calves (arising from worms in the windpipe); and also a cutaneous disease of a frequent occurrence in yearlings. I will not occupy much space, or waste the pages of your journal unprofitably, by giving a full detail of the primary cause of these parasites in the air passages of calves; but will refer you to an ably written paper on this disease by Mr. Meyer, V.S., of Newcastle, which appeared in a few numbers since: but I will detail to you the most successful method I have found in expelling these thread-like worms from the air tubes and windpipe. In the first place, I do not rely much on the internal exhibition of any medicament, as it must travel the round of the circulation of the blood before it can reach the part occupied by these troublesome little parasitical insects—the effect of which would be, either rendering the agent employed too inactive, or not of sufficient power to exert any influence when thrown out by the exhalents of the air passages on them, impacted as they are, and enveloped in the mucus secretions of the respiratory tubes. The method I have adopted for the last 15 years with great success (and it is of a frequent occurrence in my neighbourhood) is inhalation—that is, making the animals respire or breathe certain exhalations given off from medicinal substances in a state of vaporisation, whereby it comes into direct contact with the parts in which these little insectile bodies are lodged; my first plan of proceeding is, when you have a number of calves with the hoose (arising from worms in the windpipe) well defined, and not caused from catarrh, or an inflammatory action of these parts—to pour into the nostrils of each, two tea-spoonsful of the following mixture, first elevating the nose in an horizontal position—sulphuric ether, 2 oz.; rectified oil of amber, 1 drachm. You may occasionally vary this by adding, instead of oil of amber, the same proportion of oil of turpentine, or oil of tar; repeat this every second or third day for three or four several times; the modus operandi of this compound is from the heat of the nasal tube evaporating the mixture, and by respiration it is conveyed into the air passages. I have seen calves worn down to almost perfect skeletons from the irritation produced from this distressing malady, yet have soon recovered from only one or two applications of the before mentioned mixture. The second plan is that of putting any number of calves into a close house, and allow them to inhale the fumes of tar or the smoke of tobacco in the following manner; make a fire shovel to a dull red heat, enter the house in which the animals are confined, pour some tar on the hot iron gradually from a cup, and fill the house with the vapour of the same, and as soon as it excites sneezing or coughing, leave it off, shut the door, and confine the calves there for an hour; repeat this every day for several times. I have added also occasionally a small portion of sulphur with the tar, which I think has increased its efficacy; this has often in my practice proved an effectual cure: it is easily to be done, and of but little expense; sometimes, do what you will, it is attended with only a little benefit. I have known them to as quickly disappear from their habitation in those animals as they have appeared, from some unknown cause. The internal medicine I am in the habit of administering is the spirit of turpentine mixed in

thick gruel, in doses of one or two ounces occasionally, but my chief reliance is on inhalation.

The cutaneous disease with which your yearlings are labouring under, I have frequently seen. You have called it the ringworm; I do not know that you could have called it a more apt term; it occurs in various parts of the body, more especially about the sides of the face, neck, and shoulders; the appearance of the patches may be seen at some distance from the animal, in the form of circular and oval rings, having a dry branny look, thin, and nearly devoid of hair; your treatment should consist of the internal exhibition of sulphur, and daily to anoint the bald places with an unguent, composed of one pound of common tar, half a pound of hog's lard, and two ounces of oil of turpentine. Melt the tar and lard together; when nearly cold, add the turpentine; do not apply strong solutions of mercury—they are injurious; I have known animals killed by it, from being washed with lotions compounded of it: as the spring advances, a bite of good young grass will expedite the cure by restoring the functions of the skin. I have no doubt of its contagious character, from its commencing generally with one or two, and then running through any number of animals confined with them; the houses or sheds in which they are confined, I generally have well washed with lime, as a further means of prevention. Can you but glean only a mite of information from the perusal of these few lines, it will afford me a pleasurable satisfaction. I shall be always ready to answer, as far as my humble abilities will permit, any request from any individual, through the means of this excellent journal, that will promote the interest of the agriculturist.

I remain, yours, respectfully,

Crediton, Jan. 8th. ROBERT READ, V.S.

LINSEED AND RAPESEED.

TO THE EDITOR OF THE CHELMSFORD CHRONICLE.

SIR,—Upon enquiry I find, that it is not customary throughout your important county for farmers to give their milch cows linseed cake daily. The richness which it adds to the milk for suckling calves has been fully proved by some practical farmers, who for some time past have adopted the system, as well as other advantages derived therefrom. Upon an average four pounds per day for each cow is found sufficient. In Holland the farmers have for many years pursued this course; the superiority of their butter in the London market pretty well testifies the advantages obtained from it. In Holland, also, they feed their cows to a considerable extent upon rape-cake, although so disagreeable in flavour; but this can only be accomplished by training the calves to partake of it when very young. The rape-cake is not allowed to improve the quality of the milk, but adds materially to quantity, which serves for family and other purposes.

I am, Sir, your obedient servant,

London, Jan. 12.

A TRAVELLER.

HIGHEST PRICE OF WHEAT IN ENGLAND, AND LOWEST PRICE ON THE CONTINENT.—The highest annual average price of wheat in England since the passing of the Corn-laws, was in 1817, namely, *ninety-four shillings per quarter*. The lowest price, being also the average of the year, in Russia Proper, was in 1825, *nearly sixteen shillings and nine-pence per quarter*.—Return moved for by Sir C. Lemon, and ordered to be printed, 30th March, 1840. No. 177, Wheat.

GYPSUM.

I should feel obliged to Mr. Geo. Brabyn, of Wadebridge, if he will give me the following particulars, through the medium of your paper:—

How much gypsum should be applied to a large farm-yard filled with cattle? and how often, to prevent the ammonia evaporating? In order to make the yard complete, I intend putting shutters to the eaves of the buildings, to carry the water out of the yard, and making a tank or reservoir in the middle of the yard, which lays hollow, to receive the water, which drains from the manure.

How should this liquid be made effectual as a manure; whether it should be put on the ground by a liquid manure cart when full, or over the dung in the yard, or on the mixens already made in the fields? Whether it should remain in the tank any time before taking out, or taken out of the tank as it fills? And how should the tank be made to be large enough and convenient?

By Mr. Brabyn answering the above questions, he will greatly oblige the farmers generally, as there appears great ignorance among them in these matters; and if anything else is wanting to make the farm-yard quite complete in making manure, by Mr. Brabyn informing us of the same, he will greatly oblige Your obedient servant,

A. J.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—In your number for this month is a letter from a "Devonshire Farmer," referring to my letter, addressed to you, of the 14th of November last, requesting me to inform him, through the same medium, how he should make gypsum. I would say in reply that, though easy made, it is much more economical to buy it in London, as it occurs in nature (at 38s. per ton, as advertised in your Magazine,) than to make it; yet I will inform your correspondent, to the best of my abilities, how it may be easily made.

Let him take 150lbs. of pounded chalk, put it in a vessel capable of holding six or eight times the quantity, pour upon it 300lbs. of water, then take 100lbs. of sulphuric acid, and pour upon it at several different times, say eight or ten, till the whole is poured in. He can best judge the length of intervals between the pourings in by the slackening of effervescence. (Here the chalk is in excess, for we can hardly suppose it to be pure carbonate of lime, and it is more economical for it to be in excess than the acid.) After this is done, let it stand three or four days, stirring it once a day; then let it settle down, and pour off the water, and you will have 172lbs. of gypsum, mixed with 50lbs. of chalk or other earths. If chalk cannot be got, limestone, broken small, will produce the same results; but I think it advisable to leave the liquid a little longer on it. Or easier still would be—to take 84lbs. of new burnt lime, put it in a vessel and pour water upon it as before; as soon as slaked, pour all the acid upon it at once—there will be no effervescence here—stir it up; let it settle down, and it is done. Here you will have 172lbs. of gypsum as before, mixed with 28lbs. of caustic lime and other earths, which the original limestone contained. But the produce of this last method will not do for the purpose mentioned in my letter of the 14th of November, as it contains caustic lime, which is injurious to all animal manures. I hope this will be perfectly understood.

I know it is a custom with landlords in some parts of Cornwall and Devon, to bind their tenants to carry a certain quantity of burnt lime on their estates when they prepare for tillage, without reference to how it is to be used; but if they would consider its chemical action, they would also bind them not to mix it with animal manures.

As carbonate of lime is a necessary constituent of the soil, if it does not already exist in sufficient quantity, it must be carried; and the most convenient method of reducing it to a pulverulent form is by burning: yet we should be cautious not to apply it to manures, nor to the soil, if the farm be in a high state of cultivation, till it be returned to its carbonated state. Caustic lime is valuable only to peaty lands, and such as contain a superabundance of inert vegetable matter. This latter part will appear irrelevant to the answer, yet I thought it might not be out of place.

I am, Sir, your obedient servant,

GREGORY BRABYN.

Wadebridge, Jan. 8, 1841.

THE EPIDEMIC.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—With the assistance of Mr. Skellett's excellent work, I have some time been my own medical practitioner on my cattle, and as I have just had to contend with the prevailing epidemic through all my stock, I think it right to add my small experience to that of others of far greater weight, and if all would contribute the results, however trifling, they might lead to some important conclusion. The disease first made its appearance with me in some stock I had sent to a distant agricultural exhibition; I could not trace it as proceeding from coming in contact with infection, nor do I think such was the case; from atmospheric or other causes not within our comprehension, there is undoubtedly a predisposition to the malady, and either fatigue or cold, or whatever tends to debilitate the system, will bring it into action, and I cannot avoid thinking the idea that it is conveyed through the country by infected cattle being moved from one part of the kingdom to another is erroneous, but there is no doubt that the fact of their being driven long distances is calculated to produce it, and of course will be likely to infect others that are in a state to take infection, which is not always the case. A neighbour whose land joins mine had the distemper last spring; my cattle, from the fences being in a bad state, repeatedly got in amongst his that were suffering, and never took the complaint; I attributed their escape, at that time, to their being in excellent condition and full of health. My stock as I suppose in all instances were first affected with lameness, which continued for a day or two before the mouth and tongue participated; these were attended with general febrile symptoms, but with no indication of active inflammation; under these circumstances I administered a simple tonic with the aperient, thinking it would have a favourable influence on the digestive organs. I gave the following in linseed gruel:—

- 1 lb. Salts.
- 4 oz. Sulphur.
- 1 Nitre.
- 1 Gentian.
- 1 Ginger.

In several cases this was sufficient, in those that did not readily yield to this dose after its operation,

I thought it desirable to use means likely to act on the skin, and at the same time stimulate healthy secretions in the stomach and bowels, in order to accomplish this, I gave—

- 4 oz. Sulpher.
- 1 Nitre.
- 1 Gentian.
- 1 Ginger.
- $\frac{1}{2}$ Castile Soap.
- 1 dram Opium.
- 2 Camphor.

And in one severe case, I added to the above a few grains of Emetic Tartar, and I think with advantage; these remedies effected a speedy recovery. I must not however attribute convalescence entirely to the means used, as I hear some persons have escaped fatal consequences without taking any means to relieve the disease. I certainly cannot coincide with this plan, believing it always desirable to assist nature where we can, and the more so in these particular cases, as although the complaint is seldom fatal, it may leave very unpleasant traces behind it, and wherever there exists any latent tendency to disease it will bring it into action. I lost one calf with the murrain during its progress through my stock, which is a malady I never was troubled with before, and I do not think it would have shown itself now, had it not been aroused by the other disorder acting on the system. As a further proof of this tendency in the epidemic, I may mention that one of my cows, which a long time since had recovered from inflammation in the udder, has now a return of it in a more violent degree; the neighbour of mine I have before alluded to, lost two cows during its attack on his stock with inflammation of the lungs; no doubt in these cases there was latent inflammatory action existing in the constitution, which was brought into active operation by the cause I have assigned; under such circumstances it must be important to clear the system of the poison as speedily and effectually as possible.

Yours truly,

EDWD. BOWLY.

Eddington, Cirencester, Dec. 26.

SIR,—As your correspondent "W. Karreck" has requested some of his brother farmers to answer certain queries named in his letter, I beg to subjoin the following statement, from which he can draw such inferences as occur to him on reading it.

On the 6th of November last I purchased at Middleham Moor 30 Highland heifers; they had been summered on a very high moor in the vicinity, and only travelled twenty miles to the fair. I put them into the hands of a tried and trusty driver to take home, giving him strict orders not to lodge them in any grass in which other cattle had been. I fully believe he strictly obeyed my orders, and brought them safely home (90 miles) on the evening of the 10th. I put them in pasture by themselves, and had them frequently looked at. On the 14th, one of them was observed to be in what Mr. Karreck very properly calls the "hot fit." I immediately gave the animal a strong purging drink, washed her mouth (which was slightly blistered) and her feet (which were not at all affected) with astringents, and shut her in a large open shed, with plenty of dry bedding. On the following day ten more were brought home with a "sick ticket," and during the three following days all the others arrived under similar circumstances. They were all treated in the manner before de-

scribed, care being taken to keep them warm and dry. To four of them only I had to administer food in the form of gruel and only one remained long in hand with bad feet. I began to turn the healthiest of them out to pasture on the fifth day after the outbreak of the disease and continued turning them out daily until the tenth day, when all except two were cured; one of these had a dreadfully ulcerated mouth, and the other, as before mentioned, with bad feet. These two were three weeks under the "Hospital Surgeon," and were then restored to their former companions perfectly cured. They have up to this time continued in a very healthy state; they were however excessively reduced in condition, although I consider them to have had the disease in a very mild form. One thing I would remark—one of the heifers although never separated from the rest, did not take the complaint. I should state that the mouths and feet of the diseased animals were regularly washed with lotions every morning until perfectly cured and in no case was bleeding resorted to, nor were the purging drinks given more than twice, and in the greater number of cases one only was found sufficient; warmth, and frequently repeated additions of dry bedding, greatly accelerated in my opinion their recovery.

The man who attends the milking cows on the farm, attended these sick cattle constantly, but the cows have hitherto escaped the disorder, and cattle which were in fields adjoining the one in which the Highlanders were first attacked have all escaped the complaint.

A great number of milk cows in this neighbourhood have during the last summer been subject to this disorder, but it is remarkable that those animals which have had tar rubbed over their faces and fore legs at intervals, have, with very few exceptions, remained healthy.

To the use of tar as above described, I attribute the safety of my milk cows; for, as I before stated, the same person attended both the well and the sick cattle. I have heard tar as a preventive much ridiculed, and perhaps deservedly so, but until we are in a condition to disprove its usefulness, possessing already evidence of its apparent efficacy, I think we should display more wisdom were we to turn our attention, and call that of men of science to the fact, thereby perhaps detecting the cause, which if once clearly established, the disorder would soon give way before the veterinary skill at the present day in practice.

You will observe, Sir, I have not answered Mr. Karreck's queries in the precise order in which they stand, nor have I the least pretension of throwing any new light on a subject already so ably discussed, but as his aim appears to be directed to the acquisition of facts on which to found correct data, I trust you will excuse the loose manner in which I have strung together the few in my possession. And if in the exercise of your excellent judgment you do not deem my communication sufficiently interesting, you can replenish your fire with it, a fate perhaps productive of more real usefulness in this very severe weather, than its publication would probably be.

I am, Sir, your obedient servant,

Lyme Cheshire.

C. R. BRADY.

We are requested to state that Sir Thomas Gooch, Bart., has consented to act as Honorary Director of the Farmer's Insurance Institution for the county of Suffolk.

THE TURNIP QUESTION.

TO MR. MATSON.

SIR,—I request you to accept my thanks for the answers you have given to the questions I propounded, and for the handsome manner in which you prefaced them; but I fear that I am about to verify the old adage, "the more you get the more you want," for I must still ask you one or two questions more; and I do this the more readily from the handsome offer you have made, to afford every information in your power.

As your average growth of turnips appears to fall considerably short of that which you have said you can grow, namely, 40 tons per acre, will you have the kindness to state—

1. Whether such a large crop is owing to a more expensive cultivation? or,

2. To a superior soil than the average soil of your farm? and

3. If the crop is produced by a superior and more expensive method, what is that method? or

4. If owing to a superior soil, what is the nature of the soil?

I have asked these questions with a two-fold view: the first, to ascertain whether the expense may not be greater than the return; for it may happen, as in fattening beasts for show, where in a great many instances, if a balance was struck, we should find that such experiment may be carried too far, because I consider that the great object of a farmer is to obtain the largest profit at the smallest cost, for a continued series of crops. The second is suggested by your remarks relative to a certain course of crops; for I think we are too much bound down by custom in this respect, and that instead of making the land subservient to our crops, we should make our crops subservient to our land; but understand me—I do not think that it will do to work haphazard; on the contrary, it is absolutely necessary for a good farmer to have such an arrangement regarding crops, that he may always be prepared beforehand. But we know that there is scarcely any district—nay, any farm of 300 acres, that has not some variety of soil; and one of the improvements which we require—an improvement you seem to have discovered and practised—is so to arrange our crops, that on each variety of soil such crops should be grown as may be found by experience to be best suited to it: and this, I think, will be one of the first steps towards "doubling the present produce of the country."

You are kind enough to say that, if I wish it, you will explain your method of growing good crops of wheat on your "burning sands." I certainly do wish it; because, from my previous avocations, I have yet much to learn, and any hint from so able a master will be welcome and valuable.

Believe me, yours, truly obliged,

Jan. 21st, 1841. JOHN MAXWELL TYLDEN.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—If you think the following statement of facts of the smallest value in the turnip question, it is much at your service.

A field of 4 A. 1 R. 26 P. of a yellow sandyish clay soil, of which bricks have been made, was in 1836 clover, in 1837 wheat, yielding of the New Red Norfolk, or Hicklings, at the rate of 10 sacks per acre, and of Chidhams at the rate of 7 sacks per acre. The stubble was ploughed, and trifolium in-

carnatum sown, which was fed off by sheep. A fair crop of red round turnips followed in 1838. Then it was sown with seven varieties of wheat, of which Colonel Le Conteur's 8 Trit. Koelin, or White Downy, yielded at the rate of 10 sacks per acre in 1839. As soon as the wheat was carried the field was under-drained, and as fast as the draining was finished, the stubble, after having been weeded of the polygonum persicaria and aviculare, and of the stinking may-weed, was ploughed in deep, and so the field remained until March 23, 1840, when it was cross-ploughed, harrowed, rolled, drag-harrowed, and then dressed, at the rate of less than six loads per acre, with dung from one of Coke's "Norfolk pressed pies" made in the field, and the dressing ploughed in April 25. This was on the eastern half of the field. On the western half, after the rolling, half a load per acre of turf ashes was spread, and then the ground stirred nine or ten inches deep with a machine like Biddell's scarifier, only neater and simpler, and then the dung was ploughed in. The field, being as fine as an onion-bed, was sown, May 25, broadcast, with R. Matson's purple-topped Swede, got directly from himself. It was twice hoed, leaving above twelve inches between the plants, and afterwards hand-weeded of the polygonum persicaria. On Nov. 12, a rod on the western half was measured, and the turnips being topped and tailed were weighed, and found to amount to 400lbs., being at the rate of 28 tons, 11 cwt. 1 qr. 20lbs. the acre; and this notwithstanding they were mildewed Aug. 8, probably from being sown so early, and that some of them were going in the middle. On the eastern half of the field the turnips are neither so thick nor so large, but are sounder, and fifty of the largest weighed 249lbs., and the produce of a rod measured and weighed yesterday, amounted to 324lbs., or at the rate of 23 tons, 2 cwt. 3 qrs. 12lbs. per acre. Between 78 and 90 West Down wethers have been feeding on the field since Oct. 20, and have done very well, and there is a month's feed still.

In the next field, which is not drained, a rod of the yellow Swede was measured, and the produce weighed Jan. 2, 1841, and yielded 300lbs., or at the rate of 21 tons, 8 cwt. 2 qrs. 8lbs. the acre.

AN EXPERIMENTALIST.

Cobham, Surrey, Jan. 21, 1841.

SIR,—Seeing no good reason that the humblest pens should not accept your invitation in the "Mark Lane Express" of the 18th instant, to contribute such facts as come within the writer's own practical knowledge, and bearing on "the turnip question" now in vogue, I place at your service as much of the following as you think will augment, by ever so small a tittle, the "amount of evidence" you seek for; although I fear that mine will not go further than to show that in one case, unsparing interculture does, of itself, greatly increase a growing crop; leaving room for inference that the result has been sweetened by more than a proportionate increase in the returns.

June 6th, 1840, I began to sow nine acres, (after wheat) with Mr. Matson's purple-top Swede, in furrows twelve to the rod on three acres, and ten to the rod on six acres, all in one field of stiff clayey land, which holds water like a pan, and into which one sinks above ankle-deep after heavy rains; very short and rich farm-yard manure was put on, in baulk, at the rate of twenty-six loads per acre. The whole had been ploughed in Dec. 1839,

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In due time the plants were thinned out ten inches apart in the row. Those in the ten furrow rods came up the strongest, and kept a-head for awhile; but were overtaken and beaten by the twelve-furrow rods, in consequence of the latter being hand hoed three times, instead of being thinned as the ten furrow rods were, three times also.

The plant was struck for a few days, and perhaps never entirely recovered from the diseases which stunted or destroyed almost every other for miles around. My crop excited attention in all its stages, and on coming to maturity, its weight was estimated by different experienced farmers so variously as to surprise me, who am young at farming, more than a little. One laid it at 20, others at 30, and one at 40 tons per acre, to say nothing of intermediate calculations.

Having determined to sell half, I measured an average-looking perch, with more than common pains; for it has often occurred to me, that by measuring in both outside rows and each extreme end of the perch, growers do sometimes deceive themselves, and unintentionally mislead others.

In weighing I did not go to a greater nicety than to regulate my deal with purchasers on the give-and-take principle, not foreseeing that I should ever feel inclined to speak in print on the subject. The produce, as well as I can judge, was 23 tons per acre.

From the random guesses above mentioned, you will admit that it is not easy to give the average crop of the neighbourhood, as you require; nor is it very pleasant to make comparisons, yet I venture to say that there was a very great difference between my crop, and that in an adjacent field (sown also with Matsonian purple-tops), belonging to an out-going tenant; for, if I may so express it, he grew apple-dumplings, whilst I grew plum-puddings.

You complain that, with two or three exceptions, turnip growers maintain a "dogged silence," but, acquiescing in your observations with regard to the improving understanding between landlord and tenant, let me remind you that there is, everywhere, a CO-LANDLORD, who, nowhere, is more talkative about the expenses of growing heavy crops, than he is of the net proceeds, accruing to him in the shape of small tithes.

Should you deem this homely trifle admissible, I beg you will freely point out the defective parts of it, for the guidance of many who feel heartily willing to appear, with their separate mite of information, amongst your minor correspondents, who stand in need of a little patient training from you, who must know that it is not easy for us small fry to clearly put, in a few words, the simplest details in husbandry.—I am, &c.,

HAND-HOE.

Jan. 21, 1841.

SIR,—I am afraid you will think me becoming troublesome, but in the hope that you will excuse and accept me this time, I sit down to communicate a few more remarks on turnip husbandry, and other matters connected with general cultivation; but in the first place, let me correct your published report of the farm management which had successfully competed for the Manchester Agricultural Society's prize, and the Liverpool Society's prize also.* In your paper of the 11th current, it is stated that the course of management as detailed was written by the occupier. This you will find not to be the case; by referring more minutely to the manuscript I sent, you find that the

farm in question is in the occupation of a mere practical man, one who commonly holds his own plough, and could scarcely give a written description of his own course of husbandry. Now a few lines on turnip culture, referring to the given weight of crops I had inspected, and which you obligingly published, you say that these being grown *purposely* for competition must not be regarded as a sample of general crops, but rather like prize fed oxen, as compared with the ordinary fat cattle sold in Smithfield market. Now, Sir, this is a plausible comparison, and yet a very wide difference, for the turnip hobby will pay for his corn; I will not say so much for prize-fed oxen. Allow me a little more space and I have done. We read that bone dust, and also lime are found injurious to some soils, but this is a circumstance which never yet came under my observation; notwithstanding I have for some years traversed a great part of the counties of Lancashire and Cheshire upon a mission of inquiry, to determine the usefulness of bones as manure, also the same in respect to lime. I certainly have seen some lands much more improved than others by an application of either of the substances named. This has been the case in lands of different mixtures, and indeed of the same apparent character. Thus I have seen tenacious soils improved six times their original value by one top-dressing of bones; I have also seen soils of like character, whereon equal quantities have been used, not benefited to half the same purpose. Similar results have come under my observation where bones have been tried on light land, but I have never seen or heard of any case in my district where land had been made less productive either by bones or lime. Therefore, Mr. Editor, if you, or any of your intelligent readers, will give publicity to an instance, stating under what circumstances, and to what extent land has been injured by the substances in question, I shall feel much obliged for the information.

I am, Sir, yours respectfully,
A LANCASHIRE AGRICULTURIST,
NEAR MANCHESTER.

THE TURNIP CONTROVERSY.

Believing that our columns cannot be better occupied than in pursuing the discussion of the "Turnip Question," we shall offer no apology for again recurring to it at some length. We have not yet obtained such an amount of evidence as we had hoped to have received ere this, but we still feel a confidence that we have readers in every county in England who will not suffer such an important and interesting question to remain undecided, merely because they will not trouble themselves to put pen to paper. A long and laboured communication is not needed; all that is required is a brief, plain statement of the actual quantity grown upon some occasion, when proper means were taken to ascertain the weight accurately, and of the relation which that particular crop bears to the average crops of the farm and neighbourhood, assuming, as to the last point, that the land in the district is fairly cultivated. We are well aware of the old prejudice existing in the minds of many farmers, against communicating to their landlords the amount of produce which could be raised upon the land, lest it should induce them to increase the rent. This prejudice is fast disappearing. Landlords and tenants have been alike ignorant of their own real interests, and we much doubt whether, if the spirit of self-improvement, which is now extending itself throughout the country, shall continue to advance with vigour, the tenant will not take the lead, and force the

* Prize first for the best cultivated farm, as tenant and occupier.

landlords into a better system of management of their estates. With some noble exceptions, where extensive landowners are assisted and will be advised by an intelligent agent, the conditions of letting farms, as regards cultivation, and the customs, as between outgoing and incoming tenants, are such as no skilful and spirited farmer of the present day would submit to. It is, however, gratifying to know that the interests of landlord and tenant in respect to each other are better understood, and that the shyness, and even hostility, which in many cases existed, are now giving way to better and kindlier feelings. As regards the "Turnip Question," however, from which we have somewhat digressed, the prejudice to which we have adverted cannot have the effect of sealing the lips of the tenant farmer; it should rather have the contrary effect. An assertion is made that from forty to forty-five tons of Swede turnips per English acre can be grown, and although it is not stated in terms, still it has been inferred in a manner which cannot be mistaken, that by some improved system of cultivation the general crop of the country may be made to reach that average; and yet it is well known that the average growth at present does not reach twenty-five tons per acre. Here, then, we have Kent against all England—aye, and Scotland too; yet weeks have passed, and, with two or three exceptions, the turnip-growers have maintained a dogged silence, and not a voice has been heard from the best turnip counties in England. Were a judge called upon to decide in the present state of the evidence, but for a circumstance which we shall notice hereafter, his decision must be in favour of the forty to forty-five tons of Swedes per acre. In our remarks upon this subject, on the 4th and 11th of this month, we adverted to a statement made by Mr. Long, at the meeting of the Chippenham Agricultural Society, that sixty tons per acre had been grown in Scotland. As soon as our remarks met his eye, Mr. Long very kindly favoured us with a communication on the subject, in which he says that the statement he made was founded upon the recollection of what he had seen in Scotland some six or seven years ago, on the estates of gentlemen, whose names he mentions, and who are well known to the agricultural world as the first farmers of the day, and also upon the faith of answers to his enquiries as to the weight of the crops which he saw. Mr. Long states, however, that he never saw any crop weighed, and therefore cannot say of his own knowledge whether the weight were sixty, fifty, or forty tons per acre. The following remarks in Mr. Long's letter bear so strongly upon the question, that we trust he will excuse our giving them here:—

"I certainly have seen such crops of turnips there, as I never saw in any part of this country, and have always attributed it to the ridge system, which they invariably adopt. Dumbartonshire is a county with which I am much connected, and on examining the crops of turnips in shooting over the ground, I have frequently asked the question as to the calculated weight, and the answer has often been as much as sixty tons per acre. You are, no doubt, aware of the very large quantity of manure applied, viz., sixty cart loads, about a ton each, of good manure, which they usually obtain from Glasgow at 4s. per cart-load, and, in addition, lime, to the amount of about 3½ per acre, making altogether an

expenditure of 15½ per acre for manure; but they have leases of nineteen years, and consider that by so doing, they get their land into good heart for their turn. I am speaking now of tenants, and as the result of such expenditure, I have known eighteen sacks of wheat (per Scotch acre) to be produced the farm round. This would astonish some of your readers, but I saw it on the farmer's books after the corn had been thrashed and sent to market."

This statement upon the weight per acre, simply resolves itself into this,—an "opinion of the probable weight of the crop per Scotch acre, given upon mere observation, untested by weighing, including tops and tails, and raised upon land in the highest possible state of cultivation, on which manure, at an expense of 15½ per acre, may have been applied." Mr. Long's statement is, however, strongly supported by a communication from a correspondent at Aberdeen, who signs himself "Amicus," and who has given us his name and address. He says—"few of our farmers in this quarter would think forty tons per English acre much to brag of. These statements, I doubt not, will be confirmed by many farmers North of the Tweed." We trust that the appeal we made to our readers North of the Tweed, a fortnight since, and which we now repeat, will not be made in vain. "Amicus" enclosed a printed statement, headed "Dale's Hybrid," the perusal of which we earnestly recommend to our readers. From this statement it appears, setting the "Hybrid" and other sorts out of the question, that upwards of fifty-four tons per acre of Swedes were grown in December 1834, upon land which "got no more than a fair allowance of dung!" Now, fifty-four tons per Scotch acre, would be about forty-five tons per English acre, and it is pretty clear from the observations afterwards made, that they were weighed with tops and tails, which, we should estimate, at a rough guess, not less than nine tons per acre; thus reducing this extraordinary crop to about thirty-six tons per acre. We have, moreover, no account in what manner the measuring and weighing took place, a most important, but, too frequently inaccurately performed operation, in ascertaining the weight of a standing field of turnips. We refer with much pleasure to the letter of our friend "Rusticus" in this paper, in which he accurately details an experiment made for the purpose of testing the merits of the seed of different growers, and at the same time ascertaining the weight per acre. His figures, it will be seen, fell far short of the extraordinary crops to which we have now, and heretofore alluded. Of the correspondents whose communications upon this subject are now before us, there is but one other to which we deem it necessary to advert, namely, that of Mr. Matson himself, the originator of this important discussion.

It afforded us much pleasure to have the opportunity of giving insertion, last week, to a letter from Sir J. Tylden, Bart., addressed to Mr. Matson, and containing ten important questions, clear and satisfactory replies to which cannot fail, if Mr. Matson's system by which he is enabled to grow forty to forty-five tons of Swedes per acre be new and unknown, to confer invaluable benefit upon the whole agricultural community. Mr. Matson has responded to the call of Sir J. Tylden, and his

answers to the queries will be found in another part of this paper. I pass over the answers to the nine first queries, and come to the *tenth* and last. "How many acres of turnips do you generally sow, and what do you consider to be the average quantity grown?" [Answer—"From ten to twenty acres, and I consider the average produce, per acre, to be from twenty-five to thirty tons per acre."] We know not what our readers may think but we are of opinion that Mr. Matson has answered himself.

We trust, however, that the subject will not be suffered to rest here, we still hope to receive further information from correspondents; but, above all, we earnestly entreat the attention of Farmers' Clubs to this question. Farmers' Clubs are established in different places throughout the whole country, from North to South, and from East to West, although more thickly in some districts than in others; a noble opportunity now offers for proving the value of these institutions, by each making arrangements, through some of its members, for trying experiments on the growth of turnips in the ensuing season. An accurate account should be kept of every step; the preparation of the land, the nature and quantity of manure applied, the time when sown, the manner of sowing, the cultivation during the growth, &c. The report should also set forth the nature of the preceding crops, the character of the soil, and such other details as a mature consideration will suggest. If such a course were adopted, even by some two or three members of each of the Farmers' Clubs in England, now numbering upwards of fifty, what a valuable body of information would be obtained on this all-important subject. Five hundred thousand pounds embarked in experimental farms in different parts of the country, would not produce a result half so satisfactory. We have ever been most sanguine in our expectations of the good results which may be produced through the medium of Farmers' Clubs, and we now most earnestly entreat the members of all to take this question into their serious consideration. —*Mark Lane Express.*

LORD WESTERN'S SYSTEM OF DRILLING.

TO THE EDITOR OF THE CHELMSFORD CHRONICLE.

SIR,—In your *Chronicle* of the week before last, you have given insertion to a long letter from Lord Western, the main object of which seems to be, to press upon the farmers, as he has done on several previous occasions, his views and opinions in favour of a *large quantity of seed, and wide drilling, for wheat*; and, as a long time must necessarily elapse before the return of the wheat-sowing season, it may be well to invite discussion upon so important a matter from your experienced and practical readers; so that if his lordship's views are proved to be correct they may be more widely disseminated, and on the contrary, if they shall be found untenable, and not founded on sound principles, they may be abandoned in time to prevent individual and public loss.

The enquiry as to the quantity of seed neces-

sary for a given space of ground, is first of all an important one for the public. The difference of a bushel, or even half a bushel per acre, is a momentous affair in a country depending upon imports for a considerable proportion of its bread; and it really does seem to me that his lordship's statement, unsupported as it is by comparative trials, is anything but conclusive.

His reasons for *nine-inch drilling*, with so large a quantity as *three bushels per acre*, are even less satisfactory, because they are opposed to all recognised and well known laws of vegetable life, as well as to the every-day experience of the farmer. If the precise number of plants, for a given space, could be got at, the skilful cultivator would look for success from their being placed as separate as possible, that they might each and separately draw from the soil and air the nourishment necessary for their perfection. His lordship's reason for crowding wheat plants together would apply to other plants as well, and it is quite unnecessary for me to describe what would be the result.

The only circumstances which, in my opinion, admit of a *maximum quantity of seed*, are those in which the land is highly cultivated, and where the soil is largely mixed with manure fitted for the intended plant; for the soil can only promote growth or mature seed, in proportion to the quality and quantity, and of its nourishing properties. I know that his lordship's plan has been tried by other farmers, and found wanting; but I shall content myself by adducing the following testimony against it, and which may be found in the third part of the English Agricultural Society's Journal.

The *rigid accuracy* of Mr. Robert Dixon no one who knows him will be inclined to question, or that he is a first-rate farmer, and desirous on all occasions to give information or to answer any enquiries. His *comparative* (and without *comparative facts* we cannot arrive at satisfactory conclusions) experiments between wide and narrow drilling are as follows:—

Trial of narrow and wide drilling of wheat sown on the 16th of October, 1833:—the quantity of land drilled was 3 roods and 37 poles, half of which was drilled with 13 rows on a stretch 10 feet wide, the other half with 19 rows on the stretch, the land being divided into four stretches. The same quantity of seed was used, viz., at the rate of three bushels per acre, which produced, from the

	BUS. PKS.	ST. LBS.
19 rows, 348 sheaves. . .	23 13	weighing (net) 106 8
13 rows, 374 sheaves. . .	21 0	weighing (net) 96 8
Difference, bushels, 2 1		stones, 10 0

Here is a fact, carefully and clearly brought before public notice, telling against his lordship's practice by no less than *four bushels and a half an acre*. It shows also, that by both ways Mr. Dixon produced a good crop; and I have no doubt that during the eight years of his lordship's stated wheat crops, Mr. Dixon could furnish a much higher average, not only of wheat but other grain. I am rather surprised that his lordship should decry what he is pleased to call *petty experiments* on the part of young farmers. It is natural to aim at distinction, and if failure more frequently occurs than success, still inquiry and perseverance are the basis of all improvement—schemes seldom benefit themselves, but they frequently clear away the rubbish which encumbers the road to knowledge, and make the path easier for those who follow.

The late Sir Humphrey Davy began his extraordinary discoveries in a very *petty* way; for while a youth, and the apprentice of an apothecary at the Lands-End, he with a few gallipots, crucibles, and a retort or two, either in his garret or by the kitchen fire (when the cook could spare it), commenced a series of chemical experiments, which, in their result, have immortalized his name; and to the science of agriculture he gave shape, and character, and light, which it never possessed before. His lectures on "Agricultural Chemistry" will long remain as the text-book for the scientific cultivators of the soil. I fear it is but too true that the usual education given to the sons of the soil is ill adapted to their calling in life; better days I trust are dawning upon them, in which *useful, scientific, and practical knowledge*, will be cultivated. It is, however, equally true, that the sons of birth and fortune are no better off at Eton, the Charter House, or the Universities. The aristocratic idler is of all created beings the most unfit for close and vigilant enquiry. I will follow the example of his lordship, in a quotation, not from Mr. Burke, but from Sir H. Davy, with which I will conclude this letter—"It is more laborious to accumulate facts than to reason concerning them; but one good experiment is of more value than the ingenuity of a brain like Newton's." Your obedient servant,

December 12, 1840. A RIVENHALL FARMER.

A FURTHER ACCOUNT OF WEIGHTS OF ANIMALS EXHIBITED AT THE SMITHFIELD CATTLE SHOW.

CLASS I.

Mr. J. F. Senior, near Aylesbury, 4 yrs. 8 months Hereford Ox; dead weight, 198st.

CLASS II.

Mr. Cowper, Thorpe Mandeville, 3 yrs. 9 months Hereford ox; dead weight, 185st. 4lb.

Mr. Wratlaw, Rugby, 3 yrs. 11 months Durham Steer; dead weight, 190st.

CLASS V.

Mr. B. E. Bennett, Marston House, Market Harboro', gained the premium of 5 sovs., 3 yrs. 8 months Durham and Hereford Ox; dead weight, 152st.; loose fat, 16st.

CLASS VIII.

Mr. Wratlaw of Rugby, Warwickshire, gained the premium of 5 sovs., 4 yrs. 8 months Durham Heifer; dead weight, 159st.

Mr. John Beasley, Chapel Brampton, 4 yrs. 7 months Short-horned; dead weight, 145st.

Mr. John Kidd, Turner Hall, 3 yrs. 8 months Durham and Aberdeen heifer; dead weight, 144st.; loose fat, 18st.

Mr. John Bullin, Biggin Grange, near Omale, 4 yrs. 7 months Short-horned heifer; dead weight, 156st. 3lb.; loose fat, 16st.

CLASS IX.

The Right Hon. Earl Spencer, Wiseton, gained the premium of 20 sovs., 8 yrs. 8 months Durham Cow; dead weight, 155st.

Mr. Mc Grisold, Mallington, 11 yrs. 9 months Hereford cow; dead weight, 190st.; loose fat, 18st.

CLASS XVI.

Mr. W. Hobman, Ewell, near Epsom, three 29 weeks and 2 days Neapolitan and Norfolk pigs; dead weight, 37st. 4lb. each.

CLASS XII.

Mr. J. S. Burgess, Holme Pierrepont, three 20 months long-wooled sheep; dead weight, 18st. 7lb.; 19st. 1lb.; 19st. 6lb.

AGRICULTURAL QUERIES.

ON CORN MILLS FOR THE FARMER'S USE, AND ON MOWING WHEAT.

SIR,—Living four miles from the miller, I find the inconvenience to be very great. I wish through the medium of your Magazine to ask, if you can inform me whether there ever has been a mill invented for the use of farmers to grind corn for cattle, which can be worked by one horse; and if so, where are such articles manufactured, and what is the price? It has always appeared to be a great misfortune that such a piece of mechanism has not found its way, in these days of the "march of intellect;" at the same time, the cost price should be borne in mind, as that would deter many farmers from availing themselves of the opportunity of using their offal corn to advantage.

In answer to the enquiry by your Bedfordshire correspondent, as to the difference of price between "mown and shorn" wheat, I pay one penny per bushel more for mown than for shorn wheat. I consider the extra price paid for thrashing "mown wheat," balanced by the lesser price paid in harvesting—so that the only advantage in mowing is getting more ground cleared in a given time, and also increasing the lump of manure; but, at the same time, strong land does not receive so much benefit from the frost when the land has been mown, on account of its lying too close and sad.

I am, yours &c.

A SUBSCRIBER.

B—, near Barnsley, Jan. 8th.

ON A DISEASE IN CATTLE.

SIR,—Seeing one of my heifers has broken out in blotches all over her body, (resembling the shab in sheep) I should feel obliged if you, or any of your numerous correspondents, would inform me through the medium of your valuable Magazine whether cattle that have had the distemper are liable to that disease, and also the best means of effecting a cure?

By inserting this in your next number, you will much oblige,

Yours, respectfully,

Kent, Jan. 13.

T. B.

WHICH IS THE BEST BREED OF COWS FOR DAIRY PURPOSES?

SIR,—I should be greatly obliged if you would insert in your next number the following inquiry; and I should also be much indebted to any experienced practical man who will kindly furnish me with an answer. I feel assured, however much of prejudice there may exist with different breeders in favour of their particular breed, there are amongst your numerous readers many who will afford me the information I desire, as the result of their own actual experience. I am desirous to know which of the various breeds of cows may be most relied on for dairy purposes only, and which are the usual markets where such may be purchased in February or March, just before calving; or I should be glad if any gentleman would favour me with his address, who can supply me with 10 or 15 cows, really good milkers, which would probably secure me as an annual customer, provided more than a fair market price was not required, as I purpose buying in and selling out every year, instead of keeping a winter stock. I would only add, that I am desirous of securing animals of some

particular breed or first cross, rather than a mixed lot. Trusting to your kindness to insert this in your number for February, I am, Sir, your obedient servant,
Berkshire, Jan. 22, 1841. A "QUERIST."

WATER FROM MALT CISTERNS.

SIR,—If any of your readers will give information as to how Water from Malt Cisterns can be applied to a useful purpose for cattle, manure, or any other purpose, they will be doing an essential service to the public.

That this liquid contains a considerable portion of spirit from the Barley is evident, but how to turn it to a useful purpose is but little known.

Yours respectfully,

AN ENQUIRER.

Jan. 21, 1841.

"A KENTISH FARMER" enquires what soil is best adapted for the white carrots, the process in sowing, and what manure is best calculated for them, the time of sowing, and what is the best manner of laying them up, and whether they are better adapted for fattening beasts than Swede turnips, and the crop most proper to follow them.

"A CONSTANT READER" enquires whether *corns* in horses' hoofs are capable of permanent cure, and if so, what is the process necessary.

ANSWERS TO AGRICULTURAL QUERIES.

"A Correspondent," wishing information on the best and most practical way of furrow-draining, should read Mr. Smith, of Deanston's, pamphlet on the subject, published by Drummond and Sons, Agricultural Museum, Stirling.

CALENDAR OF HORTICULTURE FOR FEBRUARY.

Nothing is more closely allied to gardening than the science of Meteorology—it bears upon every branch of the art, and its phenomena are, directly or indirectly, connected with the development and growth of every plant. We are particularly called upon to advert to the subject at this period, because the public journals teem with notices which appear to be erroneous, and very likely to mislead; we read of extraordinary rigour—of intense frost—of a season of severity which has not been experienced since 1814! Now really, in sober earnest, this appears very inconsequent, to say nothing worse of it; for who, pretending to any observation or memory at all, can recur to January and February of 1838, without feeling assured that the present season is one of comparative mildness? If the average of three diurnal observations be taken of *all the days and nights* of those two entire months of 1838, it will be found several degrees below the freezing point; whereas, during the seventeen first days of January inst., three observations daily yield an average of the merest fraction below 32°, and on the 16th and 17th days (which in 1838 showed the mercury at 12° of frost, and still receding towards the neted minimum of the 30th day) the thermometer has stood 47° and 49° at 10 P. M.—every particle of a deep covering of snow vanishing with astonishing rapidity.

The truth appears to be this:—The frost began early, and December, as a whole, was a cold month, but not nearly so cold as that of 1819; and in January, we, to west of London, in the centre of the kingdom, have had frequent falls of snow, in which meteor there was a lamentable deficiency during the dreadful rigours of the second and third weeks of January, 1838. But with the exceptions of the 7th and 8th inst., we have had no intensity, and the then minimum of 7° Fahrenheit lasted but a few hours of the 9th, because the south-west wind raised the mercury to 32° by noon.

In 1838, we have records of 29°, 34°, 40°—nay more—below freezing; and the destruction of laurels, laurestinus, bay, arbutus, was notorious as it was lamentable. We have still before our view a sheep common of 2000 acres, the chief shrub of which is the common furze (*Ulex Europæus*): hundreds of acres of that hardy plant perished to the ground—not a verdant twig remaining; and to this day the bushes remain miserably stunted, though alive. A similar visitation occurred in 1813-14, and the effects were visible, we are told, during three or more succeeding years! What, we ask, is the present extent of destruction, or even of injury, in any garden, shrubbery, or field? is even one brocoli plant affected? and in 1838 did one in fifty survive? These questions we venture to place before persons of observation in all parts of the kingdom, because we shrewdly suspect that even in Nottinghamshire, which appears to offer the lowest register of the season, few could substantiate a real statement of injury.

Here candour requires us to state, that a letter received from Hertford since we wrote the last paragraph, mentions a fall of the mercury to zero, in the night of the 8th, followed by change of wind and amelioration. This degree is severe; and it is very remarkable, presenting another proof of the great difference as to heat, cold, and moisture which exist in localities by no means remote from each other; at that moment our night instrument registered the lowest degree at 7°, within a few yards of the spot where we marked 2° below zero in 1838, when neighbours, almost at hand, assured us that their instrument pointed at 6 above zero, i. e. 8° of difference! These facts confirm the following remarks, which we have just seen under the article "climate," of the *Penny Cyclopædia*:—"Temperature is affected by several circumstances and phenomena, whose influence cannot be subjected to calculation, and consequently cannot be brought under positive rules, at least not in the present state of our knowledge. Such circumstances and phenomena are—the nature of the soil, the prevailing winds, the quantity of moisture, the electrical state of the atmosphere, and the physical character of the adjacent countries and seas."

These are truths, but the writer, and indeed all the leading meteorologists of the day, would come much nearer to fact, were they to refer *all* to electricity; for is not every one of the phenomena above-named an effect of some electrical condition? Water is the medium, electricity the agent; and the more the sphere of discovery enlarges, the more clearly shall we discern that all those ceaseless changes which "vary to their great Maker still new praise," are phenomena dependant upon the *electrification of water*. These facts we suggest—the onus of disproving will rest upon the scientific doubters, who, heretofore, have "darkened counsel by words without knowledge." At all events, the wonderfully grand and comprehensive thunder-storm of the 3rd was an *electrical agent*, which regulated the sudden,

and yet durable mutations, from thaw to dry, clear, frost—from that to thaw, and daily recurring snow, thawing as it fell, although the wind blew steadily from north to east.

We have permitted our remarks to become diffuse on the existing phenomena of weather; first, because to this day (18th) they have brought the land into a condition wherein it would be useless to disturb it; and second, because it would be pleasing and profitable to induce many philosophic persons to institute comparative investigations, and to correspond one with another: in a word, it would be desirable to excite emulation in every branch of philosophical study, and to see the land abounding with educational schools. We have urged this subject for years past, through the medium of several influential sources, and take the credit of priority, though others claim the palm of now advocating that which we suggested. It is well, because the work progresses—the momentum is given, be the impelling cause what and where it may: and our agriculture, horticulture, and philosophic meteorology, will ere long be aided by efficient seminaries, wherein theory will be supported and elucidated by practical facts.

The weather having now become mild, and the ground, though swamped, open, as our spade has proved, to the depth of a good parsnip, the gardener may think of being able, by the first of February, to attend to—

1. THE VEGETABLE GARDEN.

The ground, we presume, has been so far prepared by trenching, ridging, double digging, and common turning of surface, as to be easily reduced, made level, and in free working condition to receive seeds of several vegetables. Sow in rows, drills, or appropriate beds, *early peas*, long-pod beans, horn carrot, lettuce, leek, Deptford onion, parsnip, radish, round-spinach, savoy, for the first crops: also in vinerles, or over gentle heat, *peas* for transplanting, *celery* in boxes. Place the earliest potatoes on the floor to excite the eyes. *Force* asparagus in beds, small rhubarb plants, and sea-kale, under pots.

Plant out more cabbages from the seed-beds; garlic, shallot, and onions for a summer crop; the process is very curious, and must be described, it will tend to elucidate the physiology of bulbs. Prepare a plot, open to the sun, of free-working loam; trench it 18 inches deep, manuring the bottom, and intermixing the moved soil with wood ashes—these contain carbonate of potash, and much carbonate of lime—sprinkling nitrate of soda to the extent of 1½ lb. to a square rod or perch (30½ square yards) of ground. Rake the surface perfectly, and the work being done early, let the bed be quite ready by the 21st.

Select any number of the small bulbs from among the true Spanish onions, that grow to the largest size; these small bulbs should be about an inch across, or rather more, well-formed, sound, and in every respect good, excepting size.

Beat the surface of the bed till it be level, and pretty solid, and lay it out in squares six or seven inches across, either by means of two lines or poles. These squares may alternate as chequers, or quincunx, if preferred. Scratch the surface, merely to mark the squares, and press an onion-root, downward of course, precisely at the corner or point of each intersection, to the half of its depth. Sprinkle soot and air-slaked lime, as “dusting,” over the spaces occasionally, to repel worms; and also to act as a stimulating dress to the surface. Spring advancing the roots will develop, and with them the shoot, which in this case, by the law of its structure, will

be a flower-stem and not a leaf. If this proceed, all the energy of the bulb will be devoted to the produce of fruit, therefore the shoot must be immediately snapped, or cut off. Another effort to produce a flower will be made, which must again be frustrated; and thus to the end. By degrees, and almost insensibly, it will be apparent, that two, three, or four perfect new bulbs, have been developed; and many of these will, by June and July, attain twice and three times the size of the bulb planted. In the latter month, according to the season, the crop will be ready for drying off, and prove an early and most seasonable supply.

FRUIT DEPARTMENT.

Melons and Cucumbers prepare for, by mixing the best stable manure two parts, with one part or third of the best tree leaves (oak if possible) that can be procured. Rake great heaps, and as heat arises, fork them over, to mellow. In all cases, prefer, if possible, to have open hollow beds, or pits, using the ferment as “linings,” not as solid beds, according to the old practice; four or six stout posts, a few strong cross-bars, and a flooring of stout slabs, will constitute the frame-work of a bed, for any two or three-light frame; a great economy of manure is thus effected, a moist genial atmosphere is created, and the roots trace among pure soil, and not into rank half-formed “humus.”

The Soil for *Melons* may be pure, velvety maiden loam, with one-third leaf-mould, the bottom of the bed next the slabs being the inverted leaves of the same loam. For *Cucumbers*, four or five-year-old couch grass roots, reduced to loam, constitute the best medium, one without a rival. Sow the seeds of *Cucumber* at any time, but defer the *Melon*-sowing till the middle of March.

The *Vinery* of early grapes is now in rapid action, fruit set, and enlarging. It ought, while the blossom expands, to be kept moist, vaporous, and at 70 by fire; the clusters then draw out, the footstalk of the blossoms being lengthened and widely detached. This is one of the critical periods wherein equability of temperature is productive of great advantage. When the blossom has expanded, moisture may be abated, and sprinkling should be discontinued, otherwise the farina will be washed away.

High night temperature is perhaps of no use after the fruit is safely set and the figure of the bunch formed.

The later vinery should be set to work about the end of the second week; every process of this house will advance under improving influences, and with comparative facility.

Peach and Nectarine trees swell their buds. Apricot trees sometimes precede them. When this enlargement is observed, un-nail, and prune the trees at growing buds, shortening according to approved rules, and laying in, with the greatest order, a quantity of fruitful wood, so as to be “green quite home,” that is, to have no long barren branches without verdure or bloom.

Prune all the berry-bearing shrubs. Spur currants close; leave gooseberry bushes open, abounding with strong, well arranged shoots of the wood of last year; cut back raspberry canes to a bud, at that point where the shoot takes a curve, leaving it straight, erect, and not very numerous.

Prune the spur-bearing trees,—apple, pear, plum and cherry. Cut out clean all the wood shoots that emerge among the spurs, leaving the fruit eyes perfect. If one, preserve that carefully; two or three fruit-buds form a compact and sufficient spur, but more lead to crowding. Every spur should be kept

short, and close seated on the wood. If the woolly aphid called American blight be present, the liquid sulphuret of lime, recommended by Lindley, furnishes a useful wash: it is made readily by taking 1lb. of the freshest quicklime, and 2oz. flower of sulphur; sprinkle a little water over the two, in a pan or tin, so as partly to slake the lime, and make it intermix with the sulphur; stir them well, and when both are intimately blended, pour by degrees a gallon of boiling water on the materials, constantly stirring; violent action and solution will take place, and a yellow liquor will be the result; this must be brushed on the infected parts, and over the roots, by the collar also if required. It is a capital wash for vines—none better; but the air speedily decomposes it. The limy sediment also may be applied as white-wash for fences and walls.

Plant stove and propagation-house, keep at 55 to 60; begin to re-pot the growing plants, to sow a great variety of seeds, and to take the first cuttings. In

great collections it is usual to plant numbers in the same propagation pot, and dexterous operators will pot off successfully, and almost without failure: "labor improbus omnia vincit." There are men who, like the late Mr. Sweet, "hold, as it were, the reins of nature in their hands,"—all that they touch succeeds; but alas! for the poor amateur—he must purchase his experience in perplexity and disappointment; therefore we recommend that he have a large stock of the smaller or "thumb pots," and always plant one cutting in one pot; if it succeed, he has a ball of roots ready formed, which, when the plant requires shifting, will enable him to remove it without dangerous disturbance.

Before we close, it will be right to mention that, on the third day of the thaw, the wind has veered to North East, bringing hints of snow, and a reduction of 15° in the temperature; this is the third recurrence of a three days' thaw, after about 14 days of frost.

AGRICULTURAL REPORT.

GENERAL AGRICULTURAL REPORT FOR JANUARY.

It has been a general subject of observation, that the extreme fluctuations in the weather throughout England, have been scarcely, if ever, equalled, and certainly never surpassed, at any previous corresponding period of the year since 1814, than those experienced during the month forming the subject of this report. From its commencement until about its middle, the frost—especially on one or two occasions—exceeded in severity that ever before remembered, which, together with the heavy falls of snow, had the effect of rendering inland navigation wholly impracticable, and producing a temporary suspension of the usual routine of business operations; which circumstance, notwithstanding the rapid thaw which commenced on the 15th, and effected a speedy clearance of the principal rivers, caused considerable inconvenience to those engaged in the transmission of grain to the various markets. The rapidity with which the snow and ice dissolved on the 16th, 17th, and 18th, has been, we regret to state, productive of the most disastrous consequences, in the destruction of property by floods; indeed, scarcely ever have we been called upon to record such appalling disasters, arising from inundations, as those which occurred in several districts. During the last week of the month, we had alternations of frost and rain, with a great diversity of climate; while the soil continued in such a sloppy and tender condition that the utmost difficulty was experienced in getting upon the land; hence out-door farm labours have, with a few trifling exceptions, scarcely progressed beyond that position in which they remained at the latter end of December. Still, it is acknowledged that they are in a sufficiently forward state.

At one time there were rumours afloat that the young wheat plants had received considerable injury from the sharp frosts. Credence was given to these rumours, even by wheat growers themselves; but being aware of the hardy nature of those plants, we had our doubts as to the correctness of the information transmitted to us, to the above effect. And having had since the disappearance of the snow ample opportunities of closely inspecting the plant in several important counties, we can, without the least fear of contradiction, state that, taken as a whole, the wheats have withstood the late severe

trial exceedingly well, and only require a few days of genial weather to put them all to rights. We do not mean to assert that casualties have not occurred, but that no serious ground of complaint can be made respecting them.

To those engaged in farming, to the landowner, and to the thinking portion of the community at large, the present is an era of no mean importance, both as regards their present condition and future prospects. If we reflect for one moment upon the extraordinary exertions which have been made by the anti-corn-law league in order to obtain a repeal of the corn laws, and the undue influence which has been had recourse to, that repealers may be returned in the various pending elections, we think it is full time, since the crisis is fast arriving, that the great body of farmers should be up and stirring to meet their avowed and deadly enemies, and not to shrink from the important duty they owe to themselves of defending their just rights and privileges. Our opinions are too well known on this question to require a recapitulation here, yet we cannot help observing that had the same active measures so skillfully carried out by the league, been had recourse to, in order to counteract its baneful influence, by the agriculturists, the position of these levellers would have been widely different from what it is at present. But even now it is not too late to adopt measures to make the corn law opponents "sink into their own littleness;" and we most fervently hope that these few hints will not be lost sight of.

Of late the subject of dibbling corn has met with considerable attention from various influential noblemen and gentlemen engaged in agricultural pursuits; but though the superiority of this over the systems of sowing mostly in vogue have been readily acknowledged, doubts appear to have sprung up as to the possibility of superseding the broadcast and drill systems.

An immense quantity of fodder has been consumed by the fattening stock in the course of the month, and the increase in the graziers' outlay caused by this circumstance, as well as the continuance of the epidemic, has been truly alarming. Is it, then, a matter of surprise that the prices of beef continue to rule unusually high? The general condition of both beasts and sheep, in our great grazing districts, is by no means so fine as we have

frequently had occasion to notice at this season, yet we hear very few well grounded complaints of the sheep rot; nevertheless, more than a moiety of the beasts which have reached the metropolis from Lincolnshire and Leicestershire have been more or less infected with the prevailing disease.

Throughout our provinces, the supplies of wheat offering have been, comparatively speaking, trifling, and of middling and inferior quality. The uncertainty of deliveries has induced the millers and others to refrain from purchasing only to meet their immediate wants; hence the trade, with even the finest descriptions of both red and white wheat, of home produce, has been in a very depressed state, at, in some instances, drooping currencies. The best foreign, on which duty has been paid, has freely maintained its position; but other kinds have been a mere drug. The receipts of barley having been on the increase, that article has sold heavily at an abatement of from 1s. to 2s. per qr. In malt, no alteration of moment. Fair average arrivals of oats have been reported, and the trade with them must be considered steady, at full prices.

In Scotland, the weather appears to have been less severe than with us, but several deep falls of snow took place between the 15th and 22nd. Our accounts thence are tolerably satisfactory, both as respects the corn plants and the supplies of wheat in the hands of the growers. The different markets have been moderately well supplied with wheat, the demand for which, as well as other grain, has proved heavy, at but little fluctuation in the quotations.

Throughout Ireland, the early sown wheats are presenting a favourable aspect; and the present position of farm labours is very satisfactory. Most of the principal markets have exhibited very limited supplies of wheat, yet the enquiry for it has proved heavy, at late rates. The value of oats has somewhat increased, with extensive shipments to England.

The following is our usual monthly statement of the supplies and prices of fat stock exhibited and sold in Smithfield cattle market. The former have consisted of 11,140 beasts, 98,412 sheep, 800 calves,

and 2,120 pigs; while the latter have ranged as beneath stated. Beef, from 3s. 4d. to 5s.; mutton, 3s. 6d. to 5s. 2s.; veal, 5s. to 6s.; pork, 4s. to 5s. per 8lb. to sink the offals.

At least four-fifths of the supply of beasts on each market-day, having come to hand in bad condition, and the attendance of both London and country buyers having been numerous, the prime Scots, Devons, runts, and Herefords have sold briskly at full prices, while good clearances have been effected in other breeds. The mutton trade has proved firm, at unaltered rates. Veal has readily made 6s. for the best description. No alteration in pork, with little doing:—

A STATEMENT and COMPARISON of the SUPPLIES and PRICES of FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, January 27th, 1840, and Monday, January 25th, 1841.

	At per 8lbs. to sink the offals.							
	Jan. 27, 1840.		Jan. 25, 1841.		s. d.		s. d.	
Coarse & inferior Beasts	2	10 to 3	2	..	3	2 to 3	4	
Second quality do.	3	4	3	6 ..	3	6	3	10
Prime large Oxen.....	3	8	4	0 ..	4	0	4	8
Prime Scots, &c.....	4	2	4	6 ..	4	10	5	0
Coarse & inferior Sheep	2	10	3	4 ..	3	6	3	10
Second quality do.	3	6	4	0 ..	4	0	4	2
Prime coarse woolled do. .	4	2	4	8 ..	4	8	4	10
Prime Southdown do. .	4	10	5	0 ..	4	10	5	0
Large coarse Calves ..	4	10	5	2 ..	5	0	5	6
Prime small ditto.	5	4	5	8 ..	5	8	6	0
Large Hogs.....	4	0	4	8 ..	4	2	4	6
Neat small Porkers ..	4	10	5	0 ..	4	8	5	0

SUPPLIES.

	Jan. 27, 1840.	Jan. 25, 1841.
Beasts.....	2,812	2,573
Sheep and Lambs	21,000	18,880
Calves.....	130	43
Pigs.....	412	314

The supplies of slaughtered meat received from Scotland and various distant parts of England, up to Newgate and Leadenhall markets, have been somewhat extensive, whilst the demand has proved heavy, at about stationary prices.

REVIEW OF THE CORN TRADE DURING THE MONTH OF JANUARY.

The corn trade since our last review has been unusually languid, and that improvement in prices which generally occurs at the turn of each year has not this season as yet taken place. The severity of the weather however was a sufficient, indeed we may say, the only cause of this effect; for the general interruption which it at the time occasioned to inland navigation, not only prevented the usual supplies from being forwarded to the large markets of consumption, but limited the operations of buyers of all descriptions of grain to the lowest scale possible. In the wheat trade this was more particularly observable, and, as the millers were in many quarters deprived of the means of grinding, they of course now wait a perfect change of weather before they can venture to increase their stock of wheat; and, in the mean time, they supply the bakers from their existing stocks of flour. When a complete change in the weather however does occur, the supply of wheat either must be very greatly increased to meet the demand, (for there is not any decrease in the actual consumption of bread, and the exhausted state of the flour trade must then be made good),

else a considerable improvement in its value must be the consequence of the present very inanimate state of the wheat market. During the last quarter of 1840, field operations prevented the farmers from forwarding their wheats so freely to market as under other circumstances they no doubt would have been induced to have done, but any deficiency which resulted from this cause was most amply made good by an increased supply of free foreign wheats. A considerable impression on the quantity of foreign free wheats has consequently been already made, and not much of really fine quality now remains on hand. This has liberated a large capital, which had been absorbed in the importation of wheats and flour from foreign nations; and no doubt can reasonably be entertained, that much of this capital is even already employed in furnishing productive labour to numerous industrious families, in extending improvements at home. The consumption, therefore, of all the necessaries and of many of the luxuries of life, it is but fair to presume, must, during this year, be maintained, and the wealth of the empire must thereby be proportionably increased.

All our predictions relative to the benefits which the last abundant crop must confer on the community at large, will eventually be in their fullest extent fulfilled; indeed, already is increased improvement in the circumstances of the operative classes of British society abundantly obvious, for certainly at this season of the year seldom have all classes been so productively employed as they are at the present moment. This demand for all descriptions of manufactured goods, and for our mineral products, does not originate in any increased consumption of them amongst those nations and communities from whence we have imported so much foreign grain latterly, but it mainly has been occasioned by the improved circumstances of our home market, arising from that moderate degree of prosperity which the late bountiful harvest has even already conferred on the agricultural interest. This most propitious state of the commercial interest has been attended by the payment of adequate wages to all the productive classes, and the money at present paid by them for food remains in active circulation at home, and is not, as has been the case for the last two or three years, remitted to Europe and America for the encouragement of foreign agriculture to the detriment of our own. A good crop at home, therefore, such as the last one undoubtedly has been, is even more advantageous to the commercial interest than it is to that of agriculture itself; for it is universally attended by the receipt of excellent wages by all the ranks of industry, thereby increasing the means of comfort and contentment amongst them all. In this satisfactory state of British society, when all have as much to do as they possibly can desire, it is certainly not very wonderful that the Anti-Corn-Law League is daily, we may say, rendering themselves more and more ridiculous in the eyes of the community; and that the assemblies collected by the lecturers against the bread tax, as they are pleased to call the wholesome protection which the law at present extends to British and Irish agricultural pursuits, are periodically becoming more and more contemptible, even in the manufacturing districts themselves. The operatives are wide awake to the objects of the repealers, and they know well that the reduction of the value of the necessaries and luxuries of life, would not only be followed by a more than corresponding reduction in the wages and rewards of labour, but also by what is of far greater importance to them—a destructive deficiency in the quantity of productive employment itself, which is at present so extensive, and also so valuable to every interest throughout the British empire. Like Mr. Canning's knife-grinder, they are perfectly insensible to their own wrongs; nor did they feel, nor even know of any bread-tax being in existence, until they were told so by these enlightening philosophers. It is not an easy task to convince them, at the present day, however, that generally their wages are not at least equal to their wants; and they prefer certain prosperity to ideal changes for the better, in their condition of life. They know well enough, that dearness and cheapness are relative terms only; and that, though bread in Paris would be dear at 2d. per lb., in London it is moderate at the same figure, and the reason for this fact is perfectly obvious—the *means in Paris amongst the people to pay being at least one-half inferior to those possessed by the inhabitants of London*. In Poland, where the wheat crop is universally so abundant, as well in quantity as in quality, the serfs by whom it is produced cannot afford the general

use of wheaten bread at all, where it is so extremely cheap, comparatively, because their wages for agricultural labour are far too low to admit of such extravagance; and yet the object of the members of the Anti-Corn-Law League is to place the inhabitants of England on a footing with those on the continents of America, and of Europe. The unrestricted importation of foreign grain would soon be followed by the decay of agriculture at home, and eventually by the total annihilation of that vital interest in the British empire. During the last three years we have seen, in but too great abundance, evils which resulted from the heavy importations of foreign grain, which the state of our crops at home in that period rendered necessary. The consumption of these foreign wheats did not in any visible manner increase our foreign export trade. On the contrary, they rendered an immense exportation of the precious metals absolutely necessary, in payment for our foreign grain importations. Gold consequently became dear and scarce, and many public improvements were entirely dropped, or, at all events, postponed in consequence of this ruinous circumstance. The home market for British industry was thus, not only injured by the unsatisfactory position in which bad crops had placed our agricultural interest, but likewise much more materially by the deep blow which scarce and dear money inflicted on the enterprise of the capitalist. To purchase all the necessaries of life either from our home or our Colonial producers, must always retain within the empire an immense sum of money, which, under an unlimited free corn system, would be remitted to foreigners in exchange for their agricultural products. The money thus paid to our own agricultural interest is never for one moment in a state of inactivity, but it continues to circulate, as it were in an under current, amongst all classes of the community, until eventually it returns into the coffers of those capitalists who originally put it in motion, with more than compound interest. On the contrary, money paid away for foreign food is an absolute loss to every person in the British empire. It never returns to this country in exchange for labour of any description. It is the real cause of dear money and low wages; it puts a stop to speculative and enterprising operations; it reduces very materially the profits of productive employment, which in a different distribution of our money would be annually adding to the wealth of all the industrious classes, but which, when abstracted from them for foreign purposes, reduces numerous families to actual destitution. It is really amusing to attend to the speeches of the wandering orators, who are paid for their labour out of the subscribed funds of the Anti-Corn-Law league. Their plans, if enforced, would undoubtedly make food nominally much cheaper, but on the subject of wages they maintain a most dignified silence; that the reduction of wages, however, is the principal, indeed, we may with much truth say, the only object of those cotton lords who patronize with their purses this anti-national league, is very frequently made manifest by their actions. Only a few months ago, the prospect of an abundant harvest itself caused an attempt to be made in the most considerable of the manufacturing districts to reduce the wages of labour by fifteen per cent; and the natural consequence of this attempt was, the most proper expulsion of the league orators from the town of Blackburn and other manufacturing places by those workmen themselves, whose cause they affected to advocate, but whose

eyes had been previously opened to the injuries which would be inflicted on their wages and on their means of support by cheap bread, which, for two or three years at the utmost, the total repeal of the corn laws would procure for them. They would, under the proposed free importation of foreign grain, be deprived of at least one half of the productive employment which they obtain under the existing system, and their wages would likewise be reduced much more considerably than the expences of living would be.

The agriculturists of the United States of America could even already, was the corn trade entirely free, annually exchange with us their wheat for forty millions of our dollars; and employment of this description would be so popular amongst them, that, should our supply of dollars continue, they would in a few years save our agricultural labourers the trouble of even cultivating our own fields. By legislation of this description no doubt many master manufacturers would gain more than princely fortunes, but those by whose toll they exist would be reduced to a deplorable degree of poverty and wretchedness. In the present state of civilized society, founded as it is entirely on art, the prosperity of one link in its arch cannot be injured without shaking the whole system from the very foundation itself. In British and Irish society, agriculture is by far the principal interest; and its destruction, which most assuredly the repeal of the corn laws would eventually effect, would destroy the whole community. And for evils of so much magnitude, a few princely fortunes are to be obtained!

Ill fares that land, to lengthened ills a prey,
Where wealth accumulates and men decay;
Princes and lords may flourish or may fade;
A breath can make them, as a breath has made;
But a bold peasantry, their country's pride,
If once destroyed can never be supplied.

But the age is far too enlightened for such dogmas as the Anti-Corn-Law Society teaches. The people of this country know well the practical workings of the existing agricultural system. They are perfectly aware that to this cause is commerce indebted for her high prosperity; and the empire herself owes her true greatness to similar principles. The doctrines of theorists cannot prevail over those of practice and of truth in the minds of the enlightened inhabitants of the United Kingdom; and as the sciences of geology and farming progress, on the former foundation must the necessity for cultivating our fields at home be placed, and the reliance on foreign nations for food be entirely repudiated by all right thinking men. There is, at all events, a fair prospect at the present period, that for some time now to come no necessity will exist for exporting money to any extent in exchange for foreign grain. The crop of last season is on all hands allowed to have been a large one, and as yet the delivery of wheat by the farmers has not been unusually large. The trifling improvement of about two shillings per quarter, on the finest qualities, which has taken place since our last review of the state and prospects of the wheat trade, has not been sufficiently extensive to induce the farmers to send the last crop very freely to market; and it is not, therefore, very probable that any material alteration in wheat prices can now occur before the summer months, when its value will be entirely regulated by appearances in the fields. The markets in the mean time will be supplied with wheats of British growth, in

proportion to the consumption, and with the foreign free wheat not already brought into consumption; the probability is, that at the close of this corn season a considerable quantity of the last wheat crop will remain in the growers' possession. A better seed-time than the last for the winter wheats has seldom indeed been experienced; and when the severe weather began, the young plants were healthy and vigorous in their appearance. Should, therefore, the remainder of this season be as favourable to vegetation as that part of it has been which has now passed, we may promise ourselves the enjoyment of another bountiful crop of wheat, and a material degree of relief from the consequences of exporting in large quantities the precious metals, in exchange for foreign produced food. Since the partial disappearance of the snow and ice, there is not the slightest appearance of any damage having been done to the young wheat plants; on the contrary, they have been strengthened at the roots, and vegetation generally has received a very seasonable check at this early period of the season, the beneficial consequences of which will be abundantly experienced hereafter. With prospects for the future, therefore, in every way so propitious to the best interests of the community, we may fairly indulge in the hope, that the importation of any very large quantity of foreign wheat will not be necessary during this year at all events; and that commercial operations, and the productive employment of all the industrious classes of British society, will not be interrupted by the exportation of the precious metals, rendering money again both scarce and dear, which an unlimited importation of foreign wheat most assuredly would do, and which would be the fatal consequence of an entirely open trade in grain with foreign nations. It has frequently been our duty to call the attention of our readers to the nearly boundless resources for agricultural improvements, which are most abundantly to be found in the United Kingdom. Almost everywhere an immense quantity of excellent land still remains in a perfect state of nature, and it only requires labour and capital to bring the great proportion of it forward into cultivation and usefulness. The money necessary for this purpose cannot, however, be embarked in operations so truly national, so long as foreign agricultural produce comes into the country almost free of duty, and so long as the fair profit of the British agriculturist is permitted to depend on low prices, preventing heavy importations of agricultural produce from abroad. That, by the rapid progress now making in the science of tillage, and by the conversion of waste lands into productive fields, the crops of all descriptions in this empire may be at least doubled, admits not of even the slightest doubt; and this circumstance is fully as much in the favour of trade and commerce as it is of agriculture. It will in the result render us perfectly independent, at all times and in all seasons, of foreign grain, and our Colonial possessions and other southern states will take off the surplus of each harvest, and repay us for it, either in the precious metals, or in some valuable articles of southern production. There is no reason whatever for making England the great *working shop* for the universe. The inhabitants possess within themselves industry in great abundance, and that is the only wealth of a well-ordered community. Agricultural pursuits are by far the most important occupations in which mankind can be engaged, and all other interests must

eventually be regulated by the tillage of the fields. When agriculture is prosperous, everything else flourishes, and when the elements damage the farmer's crops, every interest in the state suffers by the circumstance. The anti-corn law advocates tell the manufacturers and artisans of the United Kingdom, that foreigners will give them their food so long as they will work for them. A horse obtains his food on the same principle; but we are not so entirely without the means of obtaining agricultural produce at home, as to render degradation of this nature necessary to the labouring classes in this country; and besides, foreign nations would only supply us with grain so long as they found their interest in so doing. The people in all of them generally consume already as many British manufactures and products as they conveniently can pay for, and no exportation of grain on their part would increase their present consumption. There, the crops in almost all cases belong to the nobility, and the slaves and serfs, who labour in the fields, have not the smallest interest in the crops; they care not whether they be good or bad, nor is the amount of money obtained for the produce of their labour of the smallest consequence to their future prosperity and comfort. They gain not one additional coat by a good crop, nor are they deprived of one by any calamity which may happen to the harvest. The case in this country is the reverse of this; for there is not one individual in the united kingdom, who is not, either directly or indirectly, deeply interested in the produce of the fields, and whose prosperity will not be proportionably increased by the increase of the means now existing for agricultural improvement. The prospects of future prosperity are therefore increased by the present appearances of the corn trade. The produce of the late abundant harvest will now be gradually converted into money, and as the winter wheats look favourably at the present moment in the fields, little prospect exists, as we have frequently said, of any great drain of money being requisite this season for the payment of foreign agricultural produce. As our own crops, therefore, are converted into money, this money, in every probability, will be immediately again embarked in some internal improvement or other, and thus give ample employment to the people. Waste lands have now for several years attracted the attention of capitalists, and money applied to their cultivation will be equally productive with that which latterly has been so advantageously invested in railways.

There are several millions of acres of land, as we have frequently mentioned, which at present produce nothing valuable, but which are perfectly capable of being highly cultivated, and towards which improvement in them, it is likely that part of that capital which must now for sometime be in circulation amongst the home producers of grain, will eventually be applied. Operations of this description must add very largely to the landed wealth of the British empire—must increase the present amount of productive labour amongst the people, which is their property; and must, eventually, very materially add to the present means of supporting the community within the limits of the United Kingdom in a far superior way than can be done at present, however comfortable it may now appear to be. The inhabitants may be double the present number, and yet internal improvements will furnish them in great abundance with all the necessaries, and with many of the luxuries of life. These prospective advantages depend solely on the prosperity of agriculture, and on the property to be created by agricultural labour and science, but legislative protection is abso-

lutely necessary to the production of such important national benefits; no person, therefore, who really understands the public good, would ever dream about a repeal of the corn laws; on the contrary, agriculture, and every other interest in the empire, should receive fair and equitable protection in our great markets of consumption, against articles of the same description produced or manufactured in foreign nations. This is the truly legitimate, if not the only way of increasing the wealth of nations; it affords productive employment in sufficient abundance to the people, and it gives its due reward to the labours and prudence of the industriously disposed members of the community.

For the dulness during the last month in the wheat trade, there exist several very legitimate reasons; but for the dulness in the barley trade, which has been more than proportionably experienced during the same period, there is no good cause whatever; the supplies in all the markets of consumption have not been large since our last review, but the quality generally has been excellent, still the demand has been only to a limited extent; and notwithstanding the superior description of the farmer's samples, to effect sales at the present time, prices below its intrinsic value must be submitted to. For the breadth sown last spring with barley, we have had numerous opportunities afforded us already of stating that the produce was unusually large, and the quality of the best description; still we do not find that the consumption of the extracts of barley have been in any material degree increased by these fortunate and favourable circumstances. The people cannot find to themselves the means of paying for any extraordinary additional consumption of barley, and the growers are at the present moment deprived of that free market for the sale of their produce, to which the real wants of the people so eminently entitle them. When we reflect, however, on the fact of duties, amounting annually to twelve millions sterling, being paid into the treasury on two descriptions of manufactured barley, the immense national advantage of cultivating barley, and of extending the produce of it, becomes abundantly apparent. It is not of the actual amount of the duties levied annually on malt and English-manufactured spirits, of which the barley trade has reason to complain, so much as of the impolitic manner in which these duties are imposed; they bear by far too heavily on the *quarter* of malt, and on the *gallon* of English-manufactured spirits, and they accordingly limit the consumption of barley in the two channels of brewing and distilling, to somewhere about six millions of quarters of barley annually. Dividing this quantity of barley either in beer or spirits amongst the population, most certainly it does not exceed one-third of what, under more propitious taxation, would be considered as a very moderate allowance to each individual. The Chancellor of the Exchequer naturally wishes to leave what he thinks well alone, for it is really wonderful that, under a system of restriction and over-taxation, such a sum as twelve millions sterling can be annually paid into the treasury on the articles of beer and English-made spirits alone; but this is no reason why those members of the two Houses of Parliament who are interested in, and connected with the agricultural interest, should remain silent under a system so extremely prejudicial to the community at large. A material alteration in the mode of collecting the malt and British-made spirit duties, would increase the amount of duty now paid into the treasury—would more than triple the quantity of barley used under the present oppressive system, and would entirely suppress the

existing nefarious trade of smuggling, both in foreign and in home-made spirits. The reduction of these duties would increase the land rents of barley fields by at least one-half of their present amount—would give productive employment to at least double the number of agricultural labourers at present employed in the production of barley, and in its after conversion into beer and wholesome spirits; and, by the suppression of the smuggler's trade, would very much improve the general morality of the people, at the same time that it would give a vast addition to the comforts, and consequently to the general contentment of the community. It would save likewise to the state at least three millions sterling, now annually paid to foreign nations for spurious brandies and Dutch gin consumed in the United Kingdom without the payment of any duty whatever towards our public expenditure. The present system is exceedingly unfair to the British distiller and to the honourable licensed victualler. By the law, they are compelled to pay heavy duties and taxes for the use of the British market, for which they had previously paid so heavily. In England, with seventeen millions of inhabitants, the consumption of spirits is apparently under ten million of gallons; at least, so say the excise books, whilst it is perfectly notorious that twenty millions of gallons do not limit it. The difference in the actual quantity consumed is drawn into the empire by the smuggler, and is universally of the worst quality possible. The licensed dealers in spirits cannot of course retail smuggled spirits, and herein the law is in every respect not only injurious, but positively unjust towards them; because, it gives them leave to prosecute a trade, of the half of which heavy taxation deprives them. To reduce the spirit duty in England on British-manufactured spirits by one-half, would render the smuggler's trade unprofitable, and would consequently in a very short period indeed entirely suppress it. As soon as the spirit duties in Ireland and in Scotland were reduced to moderation, smuggling in that article very speedily indeed disappeared, and in England the same cause must produce the same effect; above all, moderate spirit duties will add strength to the great cause of temperance. This virtue stands betwixt the two extreme vices of drunkenness and teetotalism. The former vice would be destroyed by the suppression of smuggling, and common sense afterwards would speedily teach the squalid votaries of the latter vice, the benefits of moderation in all things. If, however, the English spirit duty be injurious to the commonwealth, the heavy public charge on malt is doubly so, for it is attended by numberless evils, and produces not one benefit to any class whatever; even to the violator of the excise laws it is not of the slightest use. Adulteration in quality is the first produced vice of high malt duty, and the poor are thereby defrauded of that superior quality of beer, which, under different circumstances, they would be entitled, and for which they most liberally pay. In fact, the malt duty renders beer by far too dear for the general use of the community. To charge 10s. or 12s. per quarter only, instead of 23s. of duty, would raise the quantity of barley used by the maltster from 5 millions to 10 or 12 millions of quarters annually, and would be the means of enabling millions of the inhabitants of the United Kingdom, to use, at all events, a certain quantity of beer, who, under the present excise system, cannot afford to pay for any. The revenue would not suffer by the reduction of duty, for quantity would do more than make good the deficiency which would

at first arise from it in the treasury; and, if this change was attended, at the same time, by a material reduction in the rates of duty charged in England on home-made spirits, the entire expense of the coast blockade service would be saved, and this is little short of one million sterling, annually. Under such adverse circumstances, it is really surprising that the barley trade is so healthy as it is, and that prices remain at their present quotations. Increased consumption most certainly is not the cause, but it must be entirely attributed to short production. The growers are perfectly aware of the limited state of the malting trade, and they sow their barleys accordingly. The more than doubled consumption of malt, which a reduction of the present heavy duty would occasion, would be a general benefit, the extent of which it is not possible to predict, and the good which would flow from it would be felt by every individual in the empire. As matters are, it is the general expectation that prices will not be altered much during the remainder of the malting season, and that supply and demand will be nearly equal to each other until its close.

In the Oat trade, the month of January has not produced any very material alteration. The severity of the weather, no doubt, has been attended by a more than usual increase in the consumption; but the supplies have been proportionably large, and the alterations which have occurred in the value, even of the finest qualities, are not worth quoting. To the vastly increasing improvement in agriculture, generally throughout the empire, are we indebted for this most healthy state of the oat trade; but in Ireland is the advance made in the cultivation of oats more visible than it is in Great Britain. In the latter, the cultivation of oats has, in many districts, yielded to that of wheat; but in Ireland, the ground thrown into this description of cropping is annually increasing. It is to the moderate and equitable protection which the Corn Laws throw over Irish agriculture alone, that this great national advantage can be attributed; for was the oat trade perfectly free, Germany would furnish our markets with oats, cheaper than even Ireland can do, and some millions sterling would be annually remitted to the continent in payment for these supplies. So long as we can draw the deficiency in our oat consumption from Ireland, this evil will be obviated, for the money will in this case be remitted to Ireland, and will speedily afterwards find its way into the manufacturing districts, in exchange for goods of various descriptions, where it will remain in circulation amongst all the industrious classes of society, providing for them good wages, and enabling them again to pay to our agriculturists, fair prices for all the necessaries, and for some of the luxuries of life. With proper encouragement to those who invest their capital in, and devote their time and talents to the pursuits of agriculture, that part of the empire must very rapidly advance in all descriptions of improvement, for its means are nearly boundless. The banks of the Shannon, of the Slaney, and of her numerous rivers, require only to be cleared and protected from the tides, to be converted into the finest lands for cropping; and draining will produce the same effect on a vast quantity of inland morasses, which, by capital and labour, may be rendered eminently useful to humanity. The people are rapidly becoming sensible of the great importance to themselves of agricultural improvements at home, and the hired anti-corn-law lecturers are only listened to as any actors in a farce would be, for the amusement of those who cannot find better modes of passing an hour or two than in recreations of this description.

The supplies of beans and peas, since our last review, have been rather larger than the demand; but this has been, in part, the effect of the remains of the large foreign importations, which occurred during the last season, having been pressed on the various markets for sale. A decline in their value has been the natural consequence, of from two to three shillings per quarter; but still they are sufficiently high for the purposes of our agricultural growers of them, and the present prices, if maintained, will be a fair and moderate remuneration to them for their labour, capital, and skill exercised in this department of agriculture.

The state of all the foreign corn markets throughout Europe and North America is of little consequence to the British public, at the present moment; nor would we take any notice of them at all, was it not to call the attention of our readers to the deep disappointment which is expressed in all the foreign correspondence at the closing of our markets against the consumption of grain of foreign production. From the United States of North America, the letters are particularly eloquent on this most distressing subject to them, and to the members of the Anti-Corn-Law League in this country. One letter from New York, under date the 1st of last month, in language *dressed in all the pomp of exquisite distress*, laments the injurious consequence to American agriculture of the present state of the corn trade, arising from the British corn laws. From that part of the United States, wheat and flour could, according to this authority, have been forwarded to this country lately, to the value of from two to three millions sterling; for which sum, in specie, the American growers would, for our advantage alone, have kindly consented to have exchanged the surplus of their last wheat crop. The ruin of our farmers would have been the consequence, no doubt, of the ports remaining open to foreign importations, for we dare say that the corn districts in Europe would have acted with equal liberality towards us; but their destruction would not have been, according to various letters lately received from thence, of so much consequence to us as the ruin of our export trade to the United States will be, should we not mend our manners soon, for we are threatened with the loss of their market for goods, unless we receive wheat duty free, and tobacco with very small duties attached to it. All nations, like individuals however, purchase manufactures where they find them cheapest and of best quality, and when we are rivalled, or equalled, by the American manufacturers in these respects, we shall make a virtue of necessity, and quietly yield up a department of our commerce which we cannot longer maintain. It is not impossible however that, in our eastern colonies and possessions, we may speedily increase our commerce, without destroying our agriculture, in a much greater degree than it can be diminished by the successful cultivation of manufactures in the United States of America, which American goods we shall most willingly use in this country when, by cheap provisions, their manufacturers can undersell our home ones in our markets of consumption; but the time for this improvement in our eastern commerce will arrive at least a century before we can be deprived of the custom of our American brethren in the consumption of our goods, should the change depend on their progress in the cultivation of the useful arts and sciences, for that must be slow indeed.

In Europe, generally, the corn trade is regulated by the prices and prospects in the United Kingdom, and consequently, everywhere, no animation exists in dealings in any description of grain. The pur-

chases made of Polish wheat on British account, for shipment from the Baltic, on the opening of the Vistula and inland navigation in that sea, have not as yet been to any great extent; nor are they likely to be much increased, unless a material alteration occur in the corn trade here, or prices there decline considerably under the last quotations of them. In the Black Sea and throughout the Mediterranean, appearances are the same as they are in the Baltic, for without an English demand no interesting business can be done in any of their markets. Little money therefore is required at present, at all events, for speculations of this description; the rates of the foreign exchanges are, on this account, gradually becoming more favourable to England, and it may fairly be anticipated that, as the season advances, money will become more plentiful, and enable its proprietors to give increased employment to the people—a benefit to them resulting entirely from the corn laws, and which they are now perfectly sensible of. No theory now can be spouted amongst them, which is not consistent with their own practical knowledge, and they consequently prefer fair wages for their labour to ruinous low prices for their food.

CURRENCY PER IMP. MEASURE.

JAN. 25.

	Per Qr.	White..	Per Qr.
WHEAT, Essex and Kent, red 60	62 64	Do.	62 66
Irish	60 60	Do.	60 64
Old, red	62 66	Do.	62 70
RYE, old	36 38	New....	33 41
BARLEY, Grinding 28 30 32 Malt 34 36		Chevalier ..	38
Irish	27 28	Bere ...	24 25
MALT, Suffolk and Norfolk	64 70	Brown... 56	60
Kingston and Ware	64 68	Chevalier ..	68
OATS, Yorksh. & Lincolnsh., feed 24 26		Potato... 25	26
Youghall and Cork black	22 22	Cork, white 22	24
Dublin	22 22	Westport 22	24
Waterford, white	22 22	Black ..	22 22
Newry	24 26		
Galway	18 19	20	
Scotch feed	25 26	Potato... 25	26
Clonmel	23 24	Limerick 22	24
Londonderry	23	Sligo ... 23	23
BEANS, Tick, new	38 40	Old	44 48
PEAS, Grey	36 38	40	42
White	38 40	Boilers ..	40 42
SHED, Rape	30l. 32l.	Irish..... 28l. per last.	
Linseed	41 46		
English Red Clover, fine, 70 80		90 per cwt.	
White	66 68	74	
Mustard, White 11 12		brown 18	20 per bush.
Tares, old 64		new 80	90 per qr.
FLOUR, Town-made 55		Suffolk 44 46	per pk. of 250 lbs.
Stockton and Norfolk, 44		45	

FOREIGN GRAIN AND FLOUR IN BOND.

WHEAT, Dantzic	44 48
Hamburg	40 42
BARLEY	18 21
OATS, Brew	22 24
FEED... 16	18
BEANS	30
PEAS	30
FLOUR, American, per brl.....	26 — Baltic .. 23 —

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, Jan. 23d, 1841.

	s. d.		s. d.
WHEAT	61 7	WHEAT	63 0
BARLEY	33 10	BARLEY	30 8
OATS	21 8	OATS	23 10
RYE	35 6	RYE	30 6
BEANS	40 8	BEANS	40 8
PEAS	30 11	PEAS	30 7

AVERAGES from the corresponding Gazette in the last year, Friday, Jan. 17th, 1840.

IMPERIAL AVERAGES.

Week ending	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Dec. 11th ..	58 10	32 0	21 11	34 4	41 4	40 1
18th ..	59 1	31 6	21 4	33 10	41 1	40 5
25th ..	60 1	32 4	21 5	33 5	40 9	40 1
Jan. 1st ..	61 8	32 11	21 5	32 7	40 1	41 2
8th ..	61 9	33 6	21 6	32 6	39 10	39 11
15th ..	61 7	32 10	21 8	32 5	40 3	39 11
Aggregate Average of the six weeks which regulates the duty.....	60 6	32 0	21 6	33 8	40 7	40 3
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London	26 8	13 10	15 3	19 9	9 6	9 6
Do. on grain from British possessions out of Europe.....	5 0	0 6	2 0	3 0	0 6	0 6

PRICES OF SEEDS.

JAN. 25.

No demand of consequence has yet been experienced for Cloverseed, and the supply of English having somewhat increased during the past week, prices have rather a downward tendency this morning. In other species of Seeds there was scarcely anything passing, and quotations consequently underwent little or no change. Canaryseed was quite neglected. Foreign small Tares are worth from 7s. to 8s. per bushel; fine large even more, say up to 9s. 6d.

Linseed, English, sowing	55	60				
Baltic	—	—	crushing	45	50	per qr.
Mediterr. & Odessa	46	52				
Hempseed, small.....	34	36	large..	38	40	
Coriander.....	10	16	old....	18	—	per cwt.
Mustard, brown, new ..	16	21	white..	18	18	pr. bush.
Turnip Seed, new Swedes ..	—	—		10	18	
Trefoil	10	23	fine new	35	30	
Rapeseed, English	30l.	34l.	foreign ..	—	—	per last.
Rye Grass, English.....	30	42	Scotch	13	4	
Tares, winter	8	9	Spring ..	—	—	
Large, foreign.....	8	8				
Clover, English, red	58	90	white	48	60	per cwt.
Flemish.....	40	68	do..	45	48	
New Hamburg	52	65	do..	46	60	
Old do.....	35	60	do..	—	—	nominal
French	50	62	do..	—	—	
Old do.....	40	54				
Canary, new.....	80	92	extra	84	86	
Carraway, old	50	54	new	48	52	

PRICES OF HOPS.

BOROUGH, JAN. 25.

The market is firm, but with very little doing.

	East Kent.	Mid. Kent.	Weald of Kent.	Sussex.	Farnham.
Bags, 1886	45 to 65	45 to 65	45 to 60	s. —	s. —
Pocks, 1886	45 .. 75	45 .. 75	45 .. 65	45 .. 63	—
Bags, 1887	none	none	none	none	—
Pocks, 1887	—	—	—	—	—
Bags, 1888	80 .. 105	80 .. 105	75 .. 85	—	—
Pocks, 1888	85 .. 115	85 .. 115	84 .. 105	—	—
Bags, 1889	110 .. 150	110 .. 150	100 .. 120	—	—
Pocks, 1889	150 .. 190	150 .. 190	110 .. 150	105 .. 130	240, 300
Bags, 1890	140 .. 300	135 .. 290	—	—	—
Pocks, 1890	140 .. 320	140 .. 320	120 .. 200	130 .. 280	—

POTATO MARKET.

SOUTHWARK, WATERSIDE, JAN. 25.

The supply of Potatoes to the Waterside during the past week has been as follows, viz., from Yorkshire, 530 tons; Scotland, 320; Jersey and Guernsey, 325; Devon, 310; Kent and Essex, 151—total, 1,636 tons.—The above being a limited supply, has enabled salesmen to clear the market of [the late extensive arrivals, which causes the demand to be brisk for good samples,

and the continuance of cold weather is favourable to the general consumption of Potatoes.

PRESENT PRICES AS FOLLOW:—

York Reds.....	80s. to	90s. per ton.
Scotch Reds	—s. to	75s.
Devons	—s. to	75s.
Jersey and Guernsey		
Blues,	—s. to	70s.
Do. whites from store..	—s. to	60s.
Kent and Essex whites,	60s. to	70s.

WOOL MARKET.

BRITISH.

JAN. 25.

	s.	d.	s.	d.
Down Teggs	1	2½	1	3
Half-bred Hogs	1	2	1	3
Ewes and Wethers	1	0	1	1
Flannel do.....	1	0	1	3
Blanket Wool	0	5	0	8
Skin, Combing.....	0	10	1	0

LIVERPOOL, JAN. 23.

SCOTCH.—The general tone of the Wool market here during the past week has been good. There has been considerable activity in foreign Wools. Several large sales have been accomplished in Peruvians at fully maintained prices. Scotch Wool is still rather heavy of sale. But little enquiry has been made for it. Our public sale in the coming week is confidently looked forward to, as the sure forerunner of more business and better prices.

FOREIGN.

Import for the week	865 bags
Previously this year	5,539

Total

6,404

SCOTCH.

Import for the week	397
Previously this year	100

Total

497

FOREIGN.

Australian—superior, 1s. 10d. to 2s. 4d.; second rate, 1s. 6d. to 1s. 10d.; third ditto, 1s. 2d. to 1s. 6d. Lambs', 1s. 6d. to 2s. 6d.; ditto, grease, 9d. to 1s. per lb.

Tasmanian—superior, 1s. 9d. to 2s. 3d.; ditto second, 1s. 5d. to 1s. 9d.; ditto third, 1s. 1d. to 1s. 5d.; ditto lambs', 1s. 6d. to 2s. 4d.; ditto grease, 9d. to 1s. per lb.

Cape—First quality, 1s. 6d. to 1s. 9d.; ditto second, 1s. 1d. to 1s. 6d.; ditto inferior, and in grease, 8d. to 1s. per lb.

German—Duty paid Saxony and Silesia, first and second Electoral, 3s. to 5s.; ditto first, 2s. 3d. to 3s.; ditto second, 1s. 9d. to 2s. 3d.; Austrian, Hungarian, and Bohemian, Electoral, 2s. 9d. to 3s. 3d.; first, 2s. to 2s. 6d.; second, 1s. 8d. to 1s. 10d.; lambs', 2s. to 3s. 6d.; Fries, 1s. to 1s. 6d. per lb.

Spanish and Portuguese—Leonessa, 2s.; Segovia, 2s. 2d.; Soria, 1s. 8d. to 1s. 10d.; Caceres, 1s. 6d. to 1s. 8d.; Portugal, 1s. 3d. to 1s. 6d.; Lambs', 1s. 6d. to 2s.; Goats', 9d. to 1s. 2d. per lb.

PRICES OF MANURES.

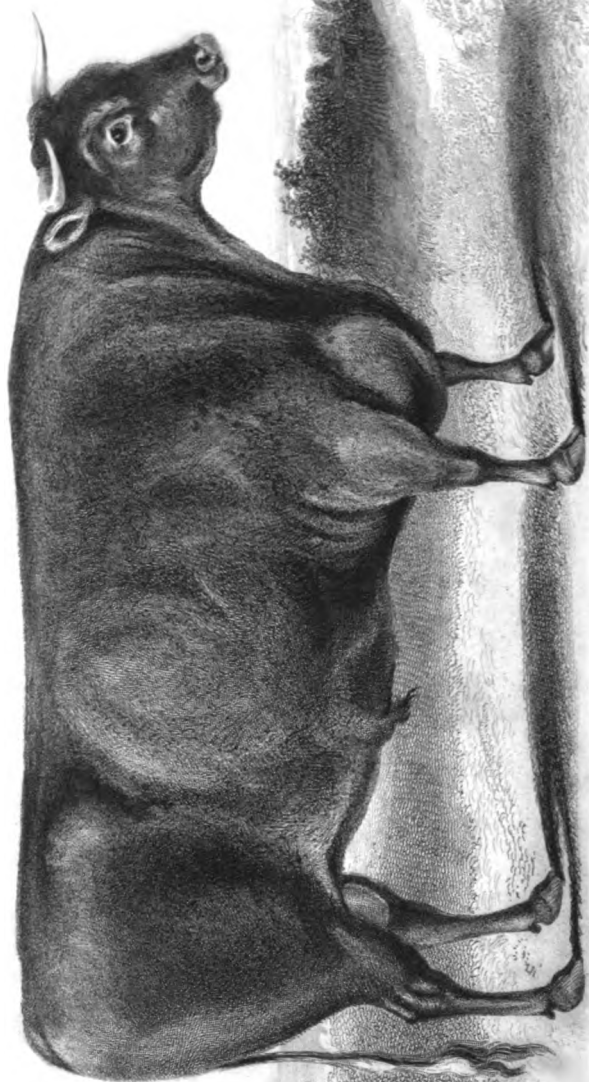
Subjoined are the present prices of several sorts of manure:—

Bone-dust, 21s. per qr. of 8 bushels.
Half-inch ditto, 20s. per qr. do.
Rape-dust, 6l. 15s. per ton.
Rags, 4l. to 4l. 10s. per ton.
Graves, 5l. to 5l. 10s. per ton.
Gypsum, 38s. per ton.
Salt, 2l. 5s. dirty, 2l. 15s. clean, per ton.
Lance's Carbon, 12s. 0d. per qr.
Humus, 14s. 0d. "
Soap ashes, 10s. per ton.
Artificial Manure, 12s. per qr.
Poittevin's Patent Disinfected Manure, 13s. 6d. per qr.
Nitrate of Soda, 20s. 6d. to 21s. 0d. per cwt.
Nitrate of Potash or Saltpetre, 26s. to 31s. 0d. per cwt.

PRICES OF SHARES.

No. of Shares.	IRON RAILWAYS.	Price per Share.	Div. per Share per Ann.	Shares.	MINES.	Price.	Dividend.
6,300	Birmingham & Derby Junc. 100l sh	72½a01		4,000	Alten 50l sh 12½ pd		
6,300	Ditto ½ shares 25l sh 5l pd			1,000	Ditto New 15l sh 12½ pd		
9,500	Ditto and Gloucester 100l sh	80½a01		10,000	Anglo Mexican (Iss. 5l pm) 100l sh		
15,000	Bristol and Exeter... 100l sh 80l pd	31½a01 ex	new	337½	Ditto Subscription 25l sh		
9,300	Ditto and Gloucester... 50l sh 2½ pd			10,000	Ditto Mint 25l sh 10l pd		
7,500	Cheltenham & Great West. Union 100l sh 62½ pd	28½a01		8,000	Blaenavon Iron & Coal 50l sh 45l pd	80l	
5,000	Chester and Crewe ... 50l sh ...	52½a01		2,000	Bolanoes 150l sh		
3,000	Clarence (Durham)..... 100l sh	30l		1,000	Ditto New 50l sh 20l pd		
8,000	Dublin and Kilkenny 100l sh 2½ pd			20,000	Ditto Scrip 25l sh		
64,000	Eastern Counties 25l sh 23l pd	8½a01		20,000	Bolivar Copper Company .. 15l sh	1½a01	
64,000	Ditto Debentures... 8l 6s 8d... 2l pd	5½a01		20,000	Ditto Scrip New ... 3l sh	3½a01	
18,000	Edinburgh & Glasgow 50l sh 35l pd	28½a01		10,000	Brazilian Imperial 35l sh 20l pd...	10½a01	
10,918	Grand Junction 100l sh 212½a01	14l per ct		11,000	Ditto St. John Del Rey 30l sh 14½ pd	14½a01	
10,918	Ditto Half Shares..... 50l sh 40l pd	95½l	14l per ct	20,000	British Iron Comp. 100l sh 55l pd		
10,918	Ditto Quarter Shares 25l sh pd	28½a01		10,000	Cadonga 20l sh 8½ pd		
10,000	Great N. of England 100l sh 80l pd	62½a01		10,000	Copiapu 20l sh 12½ pd	10l	
25,000	Great Western 100l sh 65l pd	92½a01		9,204	Hibernian 50l sh 11½ pd	24½a01	
25,000	Ditto Half Shares..... 50l sh	62½a01		5,730	Mexican Company 100l sh 58l pd	2½a01	
37,500	Ditto Fifths..... 20l sh 4l pd	10½a01		5,000	Minas Geraes 20l sh 12l pd		
8,000	Hull and Selby..... 50l sh	44½a01		14,460	Real del Monte registered Av. 1 sh		
36,000	London and Brighton 50l sh	43½a01			Ditto Ditto unregistered 2½a01		
26,666	London & Croydon. Av. 14l 18s 6d	12½a01		17,066	Ditto Loan (Notes)..... 150l sh		
6,334	Ditto Script 9l sh	12½a01		10,000	Rhymney Iron 50l sh	25½a01	
20,000	London and Greenwich 20l sh	8½a01	5s per sh	28,267	United Mexican 40l sh 40l pd...		
9,000	Ditto New 16l sh	17½a01	1l per sh				
80,000l.	Ditto Debentures (various amounts)			5,281	Ditto Scrip 2l pd...	2½a01	
	Ditto Script ... 6½ each 3l pd	4½a01		8,957	Ditto ditto (New) 5l pd	6½a01	
24,000	London & Blackwall 25l sh 22l pd	18½a01					
1,500	Leicester and Swannington... 50l sh	55l	2½l				
2,100	Leeds and Selby..... 100l sh		4l per sh				
8,100	Liverpool and Manchester... 100l sh	185l	9½ per ct	10,000	Anti Dry Rot Company .. 13½l sh		
11,475	Ditto Quarter Shares 25l sh	43l	9½ per ct	10,000	Assam Tea Company 50l sh 12½ pd		
7,958	Ditto Half Shares 50l sh	36l	9½ per ct	1,080	Auction Mart 50l sh 20l	20s pr sh	
26,000	London & S. Western, late London and Southampton Av. 38l 17s 9d	57½a01	2l per sh	10,000	Australian (Agricultural) 100l sh		30s pr sh
6,000	Do. Portsmouth Branch 50l sh 40l pd	46½a01	5l per ct	8,600	British Rock and Patent Salt 50l sh 35l pd	13l	1l
25,000	London & Birmingham. 100l sh 90l pd	180½a01	8l per sh	10,000	Canada Company (Chartered) 100l sh 32½ pd	31½a01	6l per ct
25,000	Ditto Quarter Shares 25l sh 5l pd	29½a01	1½ per sh	5,000	Droitwich Patent Salt 25l sh 2l		25s pr sh
81,250	Ditto New 32l sh	80l a01		2,700	Equitable Reversionary Interest Society 100l sh 60l pd		4l per ct
13,000	Manchester & Leeds 100l sh 70l pd	77½a01		30,000	General Steam Navigation Company 15l sh 14l pd	25½a01	18s pr sh
13,000	Ditto Half Shares ... 50l sh 25l pd	28½a01		1,800	Ditto Cemetery (Chartered) 25l sh		6l per ct
30,000	Manchester & Birmingham. 70l sh 40l pd	25½a01		1,800	Ditto New (Chartered) 25l sh		6l per ct
15,714	Ditto ditto Extension 70l sh 7l pd	3½a01		2,100	Hungerford Market 100l pd	32l	30s pr sh
10,000	Midland Counties 100l sh	78½a01		24,800	Ditto Debentures (var. amounts)...		5l per ct
10,000	Ditto..... ½ Shares of 25l... 5l pd	10l a01		8,000	London Cemetery (Chartered) 20l sh	30½a01	4l per ct
15,000	North Midland 100l sh	78½a01		1,800	London Corn Exchange... 37½ pd	30½a01	1l per sh
15,000	Ditto Half Shares. 40l sh 40l pd	38½a01		2,000	London Commercial Sale Rooms Average 75l sh	34l	1l
12,000	Northern & Eastern 100l sh 40l pd			2,400	London and Westminster Steam Boat Company 10l sh		5l per ct
3,782	Seyern and Wye... Average 27l sh	45l	2l 12s per sh	20,000	Mexican and South American Company 10l sh 7l pd		10s
1,000	Stockton and Darlington... Average 100l 13s 4d	350l	14l per sh	20,000	New Brunswick Land 100l sh 60l pd		5l per ct
28,000	S. Eastern and Dover 50l sh 28l pd	13½a01		4,000	New Zealand Company... 25l sh	25½a01	5l per ct
6,000	York & North Midland 50l sh	71½a01	2l 2s p sh	5,387	Reversionary Int. Society... 100l sh	108l	5l per sh
				14,400	S. Australian Comp. 25l sh 20l pd		6l per ct
				3,000	South Metropolitan Cemetery (Chartered) 25l sh		
				4,000	Thames Tunnel..... 50l sh	10½a01	
				200,000l	Upper Canada Loan		5l per ct
				200,000l	Ditto		5l per ct
				10,000l	Van D. Land (Agricultural) Chartered 100l sh 18l pd	8½a01	6s pr sh
				5,000	West London and Westminster Cemetery 25l sh 22l pd		

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A. G. H. Bull

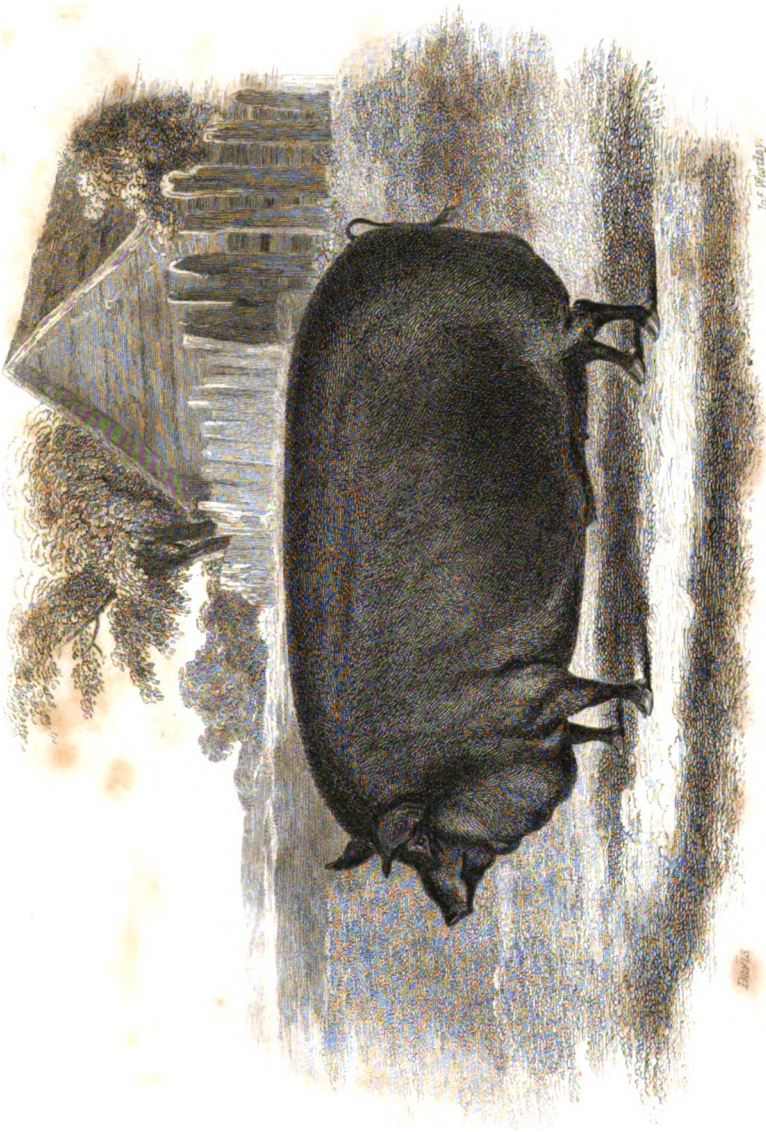
See page 100. "Bull" is a common name for the bull, but it is also used for the bull's head, which is a common name for the bull's head.

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The illustration is a reproduction of a painting by J. M. W. Turner, titled "A Pig in a Field". It depicts a large, dark pig standing in a field, with a large, multi-story wooden building in the background. The pig is facing left, and its reflection is visible in the ground. The style is that of a 19th-century engraving or lithograph.

THE FARMER'S MAGAZINE.

MARCH, 1841.

No. 3.—Vol. III.]

[SECOND SERIES.

PLATE I.

The subject of the first Plate is a Bull of the Sussex breed, bred by and the property of Mr. Putland, of West Firle, Sussex. This animal was exhibited at the meeting of the Royal Agricultural Society at Cambridge, in July last, and obtained a Prize of Thirty Sovereigns as the best Bull in Class 4, for cattle not qualified to compete in the Classes for Short-horns, Herefords, or Devons. Mr. Putland is an eminent breeder of Sussex stock, and on the above occasion was extraordinarily successful, having carried off no less than five prizes.

PLATE II.

The subject of the second Plate is a Boar of the Essex breed, the property of E. G. Barnard, Esq., M.P., to whom a Prize of Ten Sovereigns was awarded at the Meeting of the Royal Agricultural Society at Cambridge, in July last. The Boar was from the stock of Mr. W. F. Hobbs, of Marks Hall, Essex.

FRAMLINGHAM FARMERS' CLUB.

FIRST ANNUAL REPORT.

Your Committee appointed to prepare the annual statement of the proceedings of the Framlingham Farmers' Club during the past year, beg leave to preface their Report with the following observations:—

Many persons in this neighbourhood having received information during the year 1839, of the successful proceedings of the Yoxford and Harleston Farmers' Clubs, and finding that similar Societies were springing up around, were desirous that the Framlingham district should keep pace with its neighbours in the acquirement of knowledge in agricultural pursuits, determined at the commencement of 1840 to establish a Club for this town and neighbourhood.

At first, members joined slowly; but after two or three monthly meetings our numbers rapidly increased, it becoming manifest that, if no better mode of tillage or management of our lands was to be brought forth immediately, as some had anticipated, still much, very much benefit arose during the discussion of subjects before the Club—each member stating his own ideas and practices on the particular matters under debate; and seeing, by such discussions, erroneous opinions giving way to sound practical information: and your Committee have pleasure in saying, that there are nearly one hundred members in the Club.

With regard to the hour of meeting on Club evenings, your Committee wish to observe, it would be very desirable that greater punctuality should be obtained, as it is almost impossible to proceed regu-

larly with the discussion whilst members are constantly coming in. And also your Committee would recommend, that greater care should be taken to arrange with some member or members, at the previous monthly meeting (or, if possible, at the present time,) to introduce the subjects for discussion at the monthly meetings.

Your Committee suggest the propriety of the subjects for discussion during the ensuing year being immediately determined upon, and the days for each fixed, and printed circulars to that effect forwarded to all the members.

Your Committee, in alluding to the liberality of the winners of the Sweepstakes during the past year, who so handsomely returned the amount to the Club, beg to suggest that, in their opinion, it would be desirable for the future, to expend such winnings in some experiment upon their lands or stock, and report the result to the Club.

The subjects discussed during the past year were as follows:—

In February.—Club formed, and arrangements made.

March.—Subject was, Top Dressing Wheat and Layers.

Resolved,—That there are several artificial manures applicable as top dressings for wheat, clover, and grasses, which deserve the serious attention of the Club, and recommend its members to test experiments with as many of such manures as convenient, and report the same at some future meeting.

April.—Subject: Best varieties of Root, and best culture thereof.

1st. Mangel Wurzel. Carried by a majority of one, to be dibbled on the ridge; the minority being in favour of drilling on the ridge. The last fortnight

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[No. 3.—VOL. XIV.

OLD SERIES.]

in April the best time for putting in the seed. The manual labour of one acre of beet root was stated at 4*l.* 2*s.* 9*d.*, and manual, with horse labour included, 7*l.* 1*s.* 9*d.* Subject adjourned. Sweepstakes entered into for roots to be shewn at the November meeting.

May.—Adjourned subject: For the distance which mangel wurzel should be planted apart upon the ridge, such ridges being about 32 inches distant. There were 2 votes for 14 inches, 7 for 15 inches, 6 for 18 inches, and 3 for 20 inches.

2nd. Swede Turnips. The best time for sowing, last fortnight in May. Common Turnips, if for grazing, last fortnight in June. If for cows, first week in July. The turnips to be sown on the steich. Sweepstakes closed for roots.

June.—The best mode of making Summer fallows. 1st. The best period for turning in heavy lands. 7 votes for November, 6 for the Spring.

2nd. Supposing a piece of land very foul with spear grass, when ought it to be turned in? 5 votes for November, 8 for the Spring.

Resolved,—In making a long fallow, six earths are required; 6 inches the best depth to plough.

Whether the long fallows should be kept cloddy, or pulverised as soon as possible. 10 votes for cloddy, 3 pulverised.

July.—Mowing Wheat and Harvesting Corn.

Resolved,—That not having a sufficient number of members present, who had tried the mowing system, the Club could not with propriety come to any decision thereon; but those members who had tried it, stated it was their intention to repeat it.

Resolved,—Ten sheaves in a shock was the best number. In gavelling barley, the fork was better than the rake. In harvesting beans, the best plan was to use the sickle.

That it was better to put the harvest work out by the task, than by the week. 13 votes for, 3 against.

August.—No subject, on account of harvest.

September.—The best mode of dressing or preparing Seed Wheat, and best mode of putting in Wheat.

1st. Which is the best Wheat for Seed as to quality, say 28*s.* per coomb, no vote; 32*s.* 6*d.* per coomb, 6 votes; 35*s.* per coomb, 2 votes; shewing, in the opinion of the Club, it was not necessary to plant the finest quality of Wheat.

Resolved,—The best time of putting in Wheat, the last week in October and first fortnight in November. The drilling system is best for any description of land.

With regard to preparing Wheat for Seed, three plans were proposed. 2 votes for steeping in salt water and limed. 3 votes for a solution of wood ashes, with 1½ lb. of arsenic, in 16 pails of water, and then limed. 7 votes for its being thoroughly wetted with water and afterwards arsenic and limed.

October.—The best manner of Storing Roots.

Resolved,—To clamp mangel wurzel. 2½ yards is sufficient width for the clamp. That a thin covering of straw should be first shaken over the clamp, then 9 inches of earth, leaving the top open two or three weeks, or till the approach of frosty weather, and then to close over with earth entirely. Subject adjourned. Judges appointed for next meeting.

November.—Shew of roots. Judges' award: To Mr. Harsant Sutton, for 3 best red beet, weighed 23½ lbs., without the tops, 21 lbs.; to ditto, 3 best yellow beet root, with the tops, 19½ lbs.; to Mr. George Scotchmer, 3 best Swede turnips, the largest of which weighed 7½ lbs., and measured 25½ inches in circumference; to Mr. Goodwyn Goodwyn, 3 best white round turnips, weighed 23 lbs.; to ditto, 3 best pudding, weighed 34½ lbs.

The Judges also called the attention of the Club to the fine specimen of horned beet exhibited, (considering the unfavourableness of the season,) as being in cultivation less injurious to the soil.

Adjourned debate resumed.

Resolved,—That the best mode of storing Swede Turnips was to have them topped, and then clamped with their tails on, about 2 feet thick, and only covered over with straw.

Sweepstakes entered into for the best samples of Wheat, Barley, Beans, Peas, and Oats, to be shewn in February.

December.—Subject: The best Cattle, and best manner of Grazing Cattle.

Resolved,—That it is not so much the kind as the quality of the cattle. That cattle whilst grazing should be kept warm. That with root, oil cake, and bean meal together, in preference to either separately, was the best description of food, and that cattle should always have water by them.

Resolved,—By a majority of 6 votes: That cattle should have all the food given to them to eat, that they would eat up clean. The minority being of opinion that they should have regular quantities, and given to them at regular hours.

As to whether 1000 of oil cake, or 17 coombs of beans, were best for grazing. 10 votes for beans—5 votes for oil cake.

Resolved,—That clover was better than hay for grazing.

January.—Subject: The best manner of Feeding Cart Horses.

Resolved,—That the best manner of feeding cart horses, is to allow them not less than 9 stone of hay per week, with one bushel of corn—which bushel should be equivalent to 2 pecks of oats, and 2 pecks of beans. To feed in summer with tares in yard, and to lodge them in a yard rather than confine in the stables.

With regard to the average expense of keeping a cart horse, there were 9 votes for 18*l.* per year; 5 votes for 19*l.*; 6 votes for 20*l.*—Judges appointed for next meeting.

The Treasurer's Account is as follow—from 17th February, 1840, to 2nd February, 1841:

Dr.	£	s.	d.	Cr.	£	s.	d.
To 93 subscriptions at 2 <i>s.</i> 6 <i>d.</i>	11	12	6	By Secretary's bill for books,	3 <i>l.</i>	13 <i>s.</i>	6 <i>d.</i>
Cash received for sweepstakes				do. for printing, advertisements, &c.	3 <i>l.</i>	19 <i>s.</i>	10 <i>d.</i>
for Roots at meeting, 14th April, 1 <i>l.</i> 10 <i>s.</i>				By sweepstakes paid to Mr. G. Scotchmer, on Nov. 10th,			
ditto 19th May, 14 <i>s.</i>	2	4	0	13 <i>s.</i> ; do. Mr. H. Sutton, 1 <i>l.</i> 2 <i>s.</i> ; do. Mr. G. Goodwyn,			
Cash received for sweepstakes for Corn at meeting, Nov. 10th, 1 <i>l.</i> 18 <i>s.</i>				9 <i>s.</i>	2	4	0
ditto Dec. 8th, 10 <i>s.</i>	1	18	0	Cash retained for paying sweepstakes, on the 2d February	1	18	0
Cash presented to the Club, by Mr. Scotchmer, 10th Nov., 13 <i>s.</i> ; ditto by Mr. H. Sutton 1 <i>l.</i> 2 <i>s.</i> ; ditto by Mr. G. Goodwyn, 9 <i>s.</i>	2	4	0	Balance in Treasurer's hands	6	3	2
	£17	18	6		£17	18	6

That your Committee cannot refrain from calling to your notice, the intimate connection which subsists between the Farmer and Labourer, and ask, whether it would not be a desirable addition to the usefulness of the Club, if prizes could be given to Cottagers for the best vegetable productions of their gardens, and which might be adjudged at the same time as the sweepstakes for roots, belonging to the members?

Your Committee are desirous of testifying their acknowledgments to the cheerful and pleasant manner in which many persons have joined them, who are not actually engaged in the cultivation of the soil; and they beg to return their thanks, for the co-operation and assistance they have given them.

Your Committee, in conclusion, cannot refrain from stating, that they are well aware institutions of this kind are more likely to flourish during agricultural success; but they wish to impress on the Members of the Club, that no time is better for trying experiments and new modes of farming than such periods: and they would further observe, that whenever such prosperity should not continue, they would, whilst placing their reliance on Divine Providence, be more likely to be prepared and aided in meeting such reverses, by a thorough and proved practical knowledge of the best systems of culture and general management of their lands and stock.

JOHN PEIRSON,	G. EDWARDS,
JAMES BARKER,	JEPHTHA WIGHTMAN,
JOHN EDWARDS,	EDWARD GOOCH.
GOODWYN GOODWYN,	

The Club then proceeded to elect their officers for the ensuing year, when Mr. Peirson was unanimously re-elected President, and his health being proposed, was drank by the company with four times four, upon which he returned thanks in a very appropriate and animated speech. Mr. H. Clutton, of Framlingham, was appointed Secretary, on the resignation of Mr. R. Green, who severally addressed the company. Other toasts were given, which called forth several gentlemen, and particularly Mr. Mosely, who, one and all, advocated in the strongest terms the advantages of such institutions; and the evening was spent to the great delight of every one present, in harmony and social mirth.

A band of music, which was stationed in the gallery, played several selected pieces during dinner, and two or three gentlemen favoured the company, at intervals, with some excellent songs. The Club now consists of 110 members.

ON THE FOUR-COURSE SYSTEM OF HUSBANDRY,

WITH HINTS ON ITS ADVANTAGES AND DEFECTS.

By MR. MATTHEW MARMADUKE MILBURN, Thorpfield, Thirsk.

(From the Quarterly Journal of Agriculture.)

Some few years ago the four-course system was considered the perfection of the art of cultivation on light soils. The perfect alternation of green and white crops, and the combination of return to the cultivator in the shape of grain and stock which it embraced, induced the belief that it was the ultimatum of improvement, and every description of soil which could be made to bend to it, was rapidly cultivated on its principles. Two

recommendations it possessed which were certain to render it a favourite amongst the farmers; it prevented the necessity for a naked fallow, and was, perhaps, as far as can be expected, nearly a self-supplying system. It required the addition of manure but once in four years, and then required a quantity of extraneous manure but little compared with the usual modes of management at the time it was introduced. Prior to the existence of *system* in farm-management, husbandry consisted of ploughing up the sward and cropping so long as the soil would produce any grain crop, and then allowing it to lay itself with weeds, and "rest" until it was again broken up for the same purpose; and this was a rotation—primitive and simple, it is true, but still a complete rotation. The decomposed vegetable matter accumulated during the existence of the sward,—formed the nourishment for the grain crops which followed,—and when they had exhausted it, a growth of indigenous plants succeed, which would exist with a less portion of nutriment than any exotic could: these grew and decay for a time, and again furnish a supply of matter fit for the foot of a succession of exotics. The next step in improvement is the interposition of fallow, which allows the soil to derive all the benefit from the action of the sun and air, as well as of thoroughly clearing it of weeds; and, added to this, the return of a portion of the crop in the shape of decomposed vegetable (manure) to supply the place of that abstracted from the soil by cropping. The next step is the intervention of green crops consumed by stock, and this comprises the "Norfolk," or four-course system. This, closely pursued, is the following:—

1. *Turnips* (manured), consumed upon the land.
2. *Barley*, sown with cloversceds.
3. *Clover* and other artificial grasses, mown or depastured.
4. *Wheat*, sown upon clover lea, which closes the course.

To shew the adaptation of these crops, they shall pass rapidly in review, *seriatim*.

1. *Turnips*.—For these, it is necessary to have the land thoroughly cleaned. The time of sowing, about the commencement of summer, gives the farmer, in ordinary seasons, an opportunity of thoroughly cleaning the land, and the subsequent hoeings and weedings completely accomplish the purpose. To obtain this crop, a great deal of manure is necessary; but when supplied, its effects are felt, directly or indirectly, for the three subsequent years. It is essential to the full development of the system that these turnips should be consumed upon the land; for this great quantity of vegetation produced would, if taken from the soil, rob it of more nutriment than the manure would supply (I am speaking of light soils). The mode of consuming the turnips should be noticed; it is such as to supply the principles necessary to vegetation in the most complete manner. First, a considerable portion of the leaves, roots, and skins of the turnips are wasted, and decompose; then the constant droppings from the fleeces, with the excrement of the sheep, which is greater or less in proportion to the heaviness of the crop; and hence the necessity of endeavouring to obtain a full crop of turnips. Another advantage is the compression of the loose earth, and perhaps more than all, there is the carbonic acid gas which the animals evolve while consuming the plants, and which is absorbed by the soil.

A firm, rich, seed-bed is thus furnished to a grain crop, and generally barley is selected, not

because it is best adapted to follow turnips, for wheat seems to be more successful, but because the turnips are consumed in time for a spring crop, and as barley is generally more valuable than any other, it is generally sown. The fact is, the soil is too much compressed, and too adhesive for the growth of barley: it would generally succeed better as the last crop of the rotation, but commonly it is impracticable. Cloverseeds do not come to perfection in the year in which they are sown. They require a whole summer and a whole winter before they are at all useful either for the scythe or the stock. Hence, if sown alone, it would require two years' use of the land for one crop. By sowing them with the barley, this is obviated, and the seeds are arriving at a due degree of maturity while the crop is growing without materially injuring either crop. When the clover is depastured, the same process goes on, but to a much smaller extent than during the consumption of turnips. There is the same compression of the soil—the gas—the droppings from the animals—but there is not near the decomposition which occurs in the turnip crop, and greater evaporation of the droppings takes place. The quantity of stock fed per acre being much less than on turnips, the treading of the soil is considerably less. An anomaly, however, exists in the mowing of clover. It is universally agreed, that when a first crop of (red) clover is mown, and the second crop depastured, the soil is in as good condition for a subsequent crop, as if the whole had been depastured. Doubtless, the circumstance of the clover deriving a great portion of its nutriment from the air, as well as its leaves shielding the ground from evaporation of the nutritive matter in the soil, tends to produce this effect. I am willing to admit that this does not seem fully to explain the fact; but if it were asked why the soil was more fertile after growing a bean crop than before, probably much the same answer would have to be given. The depasturation of the second crop of clover, at a period, too, when evaporation goes on but slowly, may be added to the above causes. Two objects are thus served by the clover crop; the soil is again compressed, and an additional quantity of nutritive matter is supplied to the subsequent wheat crop, of which the roots of the clover form no inconsiderable part. By the time the wheat is cut on most soils, there is a formidable array of root weeds to exterminate. This evil might, doubtless, be lessened, if the hoe were more generally and frequently set to work. No good reason can be urged why it should not be used twice in the spring. It was remarked above that the wheat required a firm seed-bed; and that if it could come immediately after the turnips were consumed, it would be an advantage, because it required a firmer soil than barley. To obviate this difficulty, a variety of means have been adopted. The newest invention is the *presser*, which follows the plough, and compresses the interstices of the plough seam, on which the seed is sown broadcast. In some cases the land is trodden with cattle after being sown; but in most cases rolling the *surface* in spring is adopted, and generally succeeds sufficiently for all practical purposes.

To shew the complete adaptation of the system to the wants of the crops, it need only be mentioned, that the third crop of the course is consumed before the preparation for the fourth is necessary, and this applies to every crop in the rotation.

It has been, and is still asserted, that, under the four-course system, a constant improvement in the fertility of the soil will take place. This, however, is not the case, for although it is perhaps as perfect an alternation of exhausting and fertilizing crops as can be devised, still it is not a rotation of sufficient length to obtain every crop in its greatest perfection. Our turnip crops and our clover are nothing compared with what they once were; they are more difficult to obtain, and less full and luxuriant when obtained, than they were formerly. So much is this beginning to be felt, that some very excellent farmers contend that the intervention of a fallow occasionally is necessary to keep the soil in that full state of productiveness which it ought to be the object of every farmer to secure. I pretend not to say whether this state of things proceeds from radical exudations, or from each plant extracting its peculiar principle from the soil, but the fact is incontestable. A fallow, however, sadly interferes with almost every desirable quality in the system, and is but a robber, because it adds nothing either to the manure heap or the pocket. Gardens which always produce a crop, and occasionally two crops in the year, are never fallowed; nor is any fallow really necessary on dry manageable soils. By fallow, I mean the complete suspension of all crops for one full year. If a partial or "bastard" fallow can be introduced between any crops, there can be no doubt it will be found useful.

From experience it appears, therefore, that the four-course system,—the system of *change*, in a long course of years, requires a change itself. The turnips and the clover, the mainstays of the system, are the crops where the deterioration is principally detected,—fail these, and away goes every recommendation of the system; they are the very foundations on which it is built.

Two little illustrations of the course of deterioration occurred under my own observation last year, which sufficiently establish the fact, that fertility of the soil will not altogether overcome the frequent recurrence of the same crops. A turnip-field at Thorpfield was bisected by the Great North of England Railway. The crop was sown with well rotted farm-yard manure, and twelve bushels of half-inch bones per acre. The land was worth about two pounds ten shillings per acre to rent, and had been many years under the four-course system. A corner of the field had to be laid to an adjoining one, intended for turnips. The turnips were pulled off the corner, and the quickwood-fence was levelled, and the roots grubbed up. I conceived, after the dressing above alluded to, it was in much better condition for a crop than the adjoining, now united, field. The whole was sown with turnips, and with the same dressing per acre as above stated, and all treated exactly in the same way. The corner which had been turnips the preceding year, exhibited a poor, dwarfish, unhealthy crop, the bulbs small, and the foliage yellow; the rest of the field good; but the patch where the hedge had been, and which had had no manure for years, but, as we should suppose, was exhausted by the fibres of the thorns, on this spot the turnips were luxuriant to a degree far beyond the best ordinary crop of turnips in the district.

I was travelling in the course of the present spring (May 5th), and met with a farmer who was busily engaged in ploughing over an eaten-off turnip field; I enquired what he was doing at that late period not to have it sown, as the turnips had

evidently been eaten off for many weeks. He replied, the field was out of heart, and he was going to make turnips of it again. I replied, I should not be surprised if his crop failed. He looked incredulous, but I pointed to a half broken up field of clover opposite, sown with beans, and asked how these beans came to be there? He said, because the clover had gone off; it was clover-sick. Yes, I replied; and if you had taken a crop of beans between your turnip crops, you might prevent this field from being turnip-sick. I saw the field in September, and it is a very inferior crop, even in this excellent turnip season; and on land too for which I would give two pounds ten shillings per acre. Another instance I will give of clover. From the difficulty of obtaining it, I limed a piece of the best land I have, worth perhaps two pounds per acre, and also manured it, for turnips. The turnips were good, and eaten on the land. The barley was very good. The clover was uncommonly well set, and looked exceedingly well, even up to April, and when the frosts were over. One piece I sowed with gypsum. The whole went off partially, and I had little else but the rye-grass with which it was mixed, to mow for fodder. If a digression may be pardoned, I think this goes far to prove the truth of the radicle-exudation theory. The land was rich: infertility was not the cause of failure. It was limed and gypsumed; principles, therefore, necessary to the growth of clover were supplied, but it went off; nor was frost the cause. Could it be anything but radicle-exudation?

The clovers seem to suffer more from the assiduous pursuit of the four-course system than any other crop. This is easily accounted for; they are growing two years out of the four.

The remedies for these evils are of two kinds. The first is an extension of the rotation; to make the various crops less frequent of occurrence, by the addition of a bean (manured) and oat crop, or others, to the end of the course. This, however, is a virtual abandonment of the system, deranges the "hather" of the farm, is accompanied by difficulties of cleaning, &c., and seldom produces a crop at all commensurate with the expense of manure, labour, and outlay, as well as often exhausting the soil so far as to render it problematical whether better green crops will be produced than under the evils of the four-course system.

The next remedy is a modification of the system; and it is one which admits of modification to a very considerable extent without materially infringing on any of its distinguishing characteristics. A few hints of the leading features of these shall close this paper.

A section of the land intended for turnips, for instance, may be sown with rape, a section with Swedes, another with spring turnips, as the yellow Aberdeen, &c., and another with winter turnips. The next time the rotation occurs, the Swede and rape pieces should be made yellow and white turnips, and *vice versa*.* In the barleys, suppose chevalier and country to be sown, the chevalier piece should be made country, and the country piece chevalier in the next rotation. I have not suggested the substitution of another grain crop for barley, because it seems to suffer least by repetition.

The clovers may be changed in a similar manner;

red for white, and white for red. My practice, and that of my father, on my little farm at Thorp-field, has been so invariably; yet we cannot obtain a crop of red clover, and our small seeds (white clover, trefoil, &c.) are by no means good, though the corn crops are improving annually. Tares may be substituted for clover for one course. If they are for eatage, winter tares may be sown in the autumn, eaten off in April, a ploughing given, and spring tares sown for summer eating; or the tares may be depastured or folded through the season; in the former case they will not carry so much stock as the small seeds. For mowing, winter tares may be sown and secured for fodder, say in July. The ground may then be broken up, a ploughing or two given, and thus the land have all the benefits of a bastard fallow; or when a grass field can be mown for fodder, a bean crop may be grown between the barley and wheat with great profit, and also with advantage to the soil. If this be adopted but in one course, it throws the clovers four years more apart. Of wheats, the different varieties may have almost infinitesimal changes run upon them; but, if serious defects seem to arise in the wheat crop, it is perfectly easy to substitute a crop of oats or peas.

An almost endless variety of changes may thus be cautiously introduced without altering the principal features of the system, which should always be regulated by the wants of the farm and the prices at which the substituted articles sell in the market.

Suggestions have been made of allowing the land to remain two or three years under the artificial grasses. As the deficiency complained of is principally in these, it must be clear, that the more the land is put under them, the greater will be the evil.* It is not in the corn crops yet, that

* From the tenor of the foregoing remarks regarding the failure of the clover crop, this is a very natural, though it happens to be not a quite correct, inference, inasmuch as it is not supported by experience. We shall tell the results of experience on this subject in Scotland. The failure of the clover crop has long been felt a grievance in this country, and many devices, as may readily be believed, have been adopted to recover its former state of luxuriance. These devices have consisted of three kinds. 1st—The postponement of the recurrence of clover in the rotation is one. Clover was usually taken once in four years; but now it returns once in five, or even eight years. This plan has been chiefly tried on farms in the immediate vicinity of large towns, where green crops of all kinds are in constant demand, and where the existing varieties of green crops have enabled the experiment to be tried. Turnips and potatoes meet with a very ready sale in their respective seasons in such a locality; and although clover is there also sought after with as much eagerness as any of these green crops, yet, as it is only in summer it is an article of food, a substitute may be found for it in summer, in summer tares—winter tares not being suitable to this climate; and as the making of clover hay may be easily abandoned for a season, it is in the power of the farmer to dispense with the appearance of clover in the rotation until such time it may be thought probable that the land has recovered its sickness by clover. Hence clover may be dispensed with for a time in the vicinity of large towns, though neither turnips nor potatoes can; and this plan has succeeded in partially recovering the former luxuriance of the clover crop there, where it may now be seen in pretty good state on most

* And a section of potatoes may alternate with one of any of the kinds of turnips.—Editor.

the evil is principally felt. I do not say that they will never deteriorate, though I believe there is less liability in them than in green crops; but hitherto their defects are not a matter of complaint.

farms. But the same plan, it is clear, cannot be adopted at a distance from large towns, where stock must be kept to consume the green crops. There stock become the substitute for the consumption of large towns, and they cannot be maintained at all in summer without grass. Stock, it is true, may be purchased for the express purpose of consuming the winter green crop on a farm; but were such a practice to become universal, there would be no breeders of stock on farms in the low country where only artificial clover can be cultivated; and where could all the feeders of stock, who are raisers of turnips, find stock in sufficient numbers to consume their green crops? It might be suggested, that the whole stock may be bred on the old grass of the country; but this plan would be impracticable in a country where no old grass-land is preserved in the arable districts, and where the stock must be maintained on the sown grasses, and where those grasses must therefore constitute part of the usual rotation of crops, and in which, of course, they must occur as frequently as the rest of the crops. 2nd—Another plan for recovering the luxuriance of the clover crop is by manuring the land much more liberally than formerly; and as this has been effected, to a certain extent, in every part of the country, the clover crop has been found to improve in consequence of the more liberal treatment it receives, and especially in the neighbourhood of large towns, in conjunction with the plan detailed above. 3rd—But the third plan is that which has succeeded most effectually at a distance from towns, where green crops cannot be sent to market, and where large quantities of extraneous manures cannot be easily obtained, to recover the luxuriance of the clover crop; and this plan is that which Mr. Milburn deprecates, namely, the putting the land longer under the artificial grasses. At a distance from towns, two years were a very common period for the grass division of the rotation to remain, and on many farms it is so still; but from three to five years are now found by breeders of stock to be a much more eligible period. It is found that land becomes more ameliorated—that is, more fresh, more fertile, more rested—by being a longer time under the grass division than one year, or even two years; by being kept, in fact, a longer time from the disturbance of the plough. What may be the true reason that may be assigned for the amelioration of land by grass, it is not easy to discover. The theory of exudation from the roots will not of itself explain it, as why should clover thrive better on land that has been a long time than a short time in grass? But whatever theory may explain it, there is no doubt of the fact. However paradoxical it may seem to state it, as a general principle, that the repetition, or rather duration, of a crop which the land is tired of growing, is the best means of inducing that land to grow it the more luxuriantly, there is no denying the soundness of the principle in regard to clover; there is no denying that, where the experiment of allowing clover to remain for a number of years—that is, white clover, for red clover is only available for one year—to be depastured by stock, has been tried, there the growth of red clover has become almost certain. And we would say that it is well for the country that this result has happened; for, now that the rearing and feeding of stock pay the farmer much better than the raising of white

THE SUBSOIL PLOUGH NOT A NEW IMPLEMENT.

SIR,—It may not be entirely uninteresting to your readers on agricultural matters, to know that the subsoil plough lately introduced by Mr. Smith, of Deanston, and so deservedly and justly recommended on many soils, was in use in this county nearly 50 years ago, as the following extract from Holt's View of the Agriculture of Lancashire, published in London, 1795, page 33 will prove:—"Another instrument has been lately introduced, which Mr. Eccleston with propriety calls the Miner; which is a plough-share fixed on a strong beam, without mould-boards, and drawn by four or more horses, and follows in the furrow had before gone; just made, and without turning up the substratum penetrates into and loosens the soil from eight to twelve inches deeper than the plough had before gone; which operation, besides draining the land, causes the water to carry away with it any vitriolic or other noxious matters. By the substratum thus loosened the roots of plants may penetrate deeper, and in course of time that which is but a barren substance may become fertile soil."

In the many recent notices made in the various agricultural publications, I have never seen the above reference to the antiquity of the subsoil plough, all dating it from its first use by Mr. Smith of Deanston.

If you consider this notice worthy a place in your widely extended journal, I will thank you to insert it. I am, Sir, your obedient servant,

Lancaster, Feb. 11.

RICH. HYND.

crops, it is for his interest to retain as much of his farm under grass as will suffice to supply his stock with a sufficient quantity of provender, and thereby always retain in his land a fresh store of fertility.

With regard to the four-course rotation—that is, the raising of a white crop every other year—whatever the climate of England may be able to do in support of it, it is one which that of this country cannot support on any farm, however good, situated at a distance from a large town—the source of unlimited supplies of extraneous manures. Where manure to the extent of from sixteen tons to thirty-two tons per imperial acre may be applied—and that is the rate of dunging in the neighbourhood of Edinburgh and other large towns, it is quite possible to pursue it, but no farm of this country could practise it on its own resources. The straw off two acres will not sufficiently manure one, and that being the case, without extraneous assistance the fallow division of a four-course shift cannot be manured as it ought to be. We may mention, in conclusion, that the alternation of crops on the same part of the land is rigidly followed in this country—that is to say, care is always taken, in the repetition of crops on the same ground, to vary them, by having Swedes on land that had in the former course raised white turnips, or potatoes, or beans, or tares, as the case may be, and so with barley and wheat; and yet, with all these precautions, red clover became a worthless crop, and would no doubt have continued to be so, had not the plans detailed above been tried as expedients; and fortunately, in the hands of skilful farmers, they have proved successful to a certain degree. But no doubt the time will arrive when these new expedients will also fail to produce the effects they are now doing, and then the farmer's ingenuity will again have to be taxed to devise others in conformity with the circumstances of the times.—

EDITOR.

ON SOWING WHEAT AFTER TURNIPS, SUCKLING CALVES, &c.

SIR,—A correspondent in your January number, signing himself "Addis Jackson," asks if it is advisable to sow the land on which your first turnips are fed off, with wheat? As far as injury to the land goes, I do not think, on so small a proportion of his farm as it would amount to, it would much signify; but as a principle I think it is wrong, for this reason—the risk of a plant is great, and even if you overcome that, the chance is, that the crop would be the worst on your farm. On light land (and of course only on light land would it be done) most likely it would cause poppy and Mayweed to be a trouble to you for years after.

As to the "pity the land should lay bare"—none need be felt; no manure need be lost. As the sheep finish the turnips, comb or bout the land, and the dressing lies as snug as possible till seed time arrives; and nine times out of ten that will be the farmer's best crop of barley. From what Mr. Addis Jackson says after that, it seems his course is—turnips, barley, clover, wheat, turnips, barley, tares, wheat.

For light land cropping, I differ from him very much in thinking that a good succession, for this reason—tares are too profitless to be grown elsewhere than on a fallow—his oats he has all to buy, and a fourth of his land he has to manure every year; now with two acres of straw (one barley, one wheat) I maintain he cannot make manure enough for one acre of turnips. In Hertfordshire the rule is, to sow oats after clover ley wheat, and very good crops they grow—the exception is not to do it; the farmer then grows one-fifth turnips, and he has three instead of two acres of straw to manure them with: as that extends the interval of his seeds to four years, he always sows—10 lbs. red clover, 6 lbs. trefoil, 4 lbs. white with his barley, sometimes adding 1 bushel rye grass; and if they miss, he then sows peas. But on that land a ley is so far superior to any other preparation for wheat, that he thinks the risk of gaining a plant of seeds is always worth running—and so do I. Turnips, barley, seeds, when missed peas, wheat, oats, white Tartarian, I like best.

Mr. Jackson also enquires who can show a profit by suckling? Not having lately taken stock at the end of my suckling year, I can only show an old account of a bad year with very middling cows; but I know I always have made them pay better than any other sort of cattle stock. I like them (especially on poor rough grass land) for these reasons:—The money quickly turns—you buy a down calver for 12*l.* in September, and in two months her calf is worth from 5*l.* to 6*l.*—of course the price varies—but generally the expence of keep varies in the same ratio; because any sort of milk producing food may be given to them, without regard to its effect on flavour of milk; because if you only wish to consume your straw with a profit, they will do it, and be very saleable in spring as barreners—whereas the beasts bought in in October are very often sold in April at the same price; because a little something else, with good straw, as 1 bushel grains, or 2 bushels turnips, or two cakes per day, will produce a good bag of milk.

The very farmers who suckle the least, I think ought to suckle the most, viz., turnip land farmers, because suckling pays best in winter; and it is only in winter they want cattle, as on light land farms you will seldom find any grass good for feeding.

A friend of mine bought a lot of down calving York heifers a couple of years ago in October; they

all calved within a fortnight, and they were all fed through the winter in the straw-yard, with the addition of one bushel of grains mixed in some chaff per day; he kept rather more than one calf to a cow on the average, each calf being kept only eight weeks; 16 stone calves are large enough—and they paid quite 8*s.* each per week, including loss by scouring, &c. Had he sold all these heifers as barreners in Spring, I am sure they would have fetched all they cost—less the value of their own calves, say 1*l.* each. But I should prefer cows to heifers, and the two bushels white turnips to the one bushel grains, and the cost would not be more.

I always consider if a calf pays per week in Summer 6*s.*, and in Winter from 8*s.* to 10*s.*, it is doing well; and I have always done that, being particular in describing each calf when entered in my book as bought, so as to know it again when sold; and then, in a separate column, mark the profit per week. On referring back to 1834, I find my account was thus—

1833.			53 Sucklers	
Nov. 28. Profit on calf	when half fat.	£1 10 0	bought	£75 17 6
Dec. 11. Do	2 0 0		Cows to bull	17 11
" 28. Sold a calf..	3 5 0		Cow-doctor	3 13 0
1834.				
Jan. Do. 5 do.....	21 7 6			
Feb. 13. Do. 3 do.	13 0 0			
March. Do. 5 do.	14 1 6			
April. Do. 2 do.	9 10 0			
" Do. 1 weaner..	1 5 0			
May. Do. 4 calves..	14 12 0			
June. Do. 10 do.....	31 7 6			
July. Do. 6 do.	30 3 0			
Aug. Do. 5 do.	22 0 0			
Sept. Do. 9 do.	31 13 0			
Value of 13 calves				
Sept. 20.....	32 10 6		Profit	137 10 7
	£218 5 0			218 5 0

3 heifers calved in Oct.
1 aged cow do. in Nov.
2 do. do. in Dec.
5 heifers do. in the Spring,
and three fatted from Midsummer.
3 aged cows do. in Spring.
1 two-year-old heifer in Aug.

15

They were all small—heifers and cows, and it was not a good year for suckling; on an average, the fifteen (as I do not reckon the three fatted at Midsummer) were only in milk seven months, which is each cow, per week, 6*s.* 6*d.* It is against them, that they were mostly at work in Summer—with no artificial food in the Winter—only thin grass, with straw-yard at night, and a very little hay while milking; but it is in their favour, that all their own calves came in this account, though they only averaged seven months' milking—so difficult is it from farmer's accounts to make a fair statement; but if I cut off the account on both sides previous to January 1, 1834—carry it on to January 1, 1835, and deduct the value of the 13 calves at Michaelmas, which all went by Christmas,—I find each cow paid 8*l.* 1*s.* net for her year's keep. Good York cows would have paid with good keep quite double. I should like to see the result of some good York cows, bought in in October, kept on grass till November (according to the weather); then fed gradually higher, till sold fat the middle of May, being suckled till nearly the last. I think it would show a good profit; and hope I may shortly try it. I should take the York or Hereford breed for that; but for low keep, none are preferable to the Welsh.

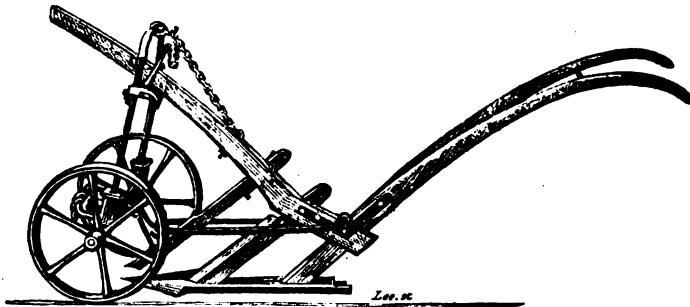
From Sir, your humble servant,

JEAN DE VEAU.

ON THE RACKHEATH SUB-TURF PLOUGH.

By SIR EDWARD STRACEY, BART, F.R.S.

(From the Journal of the Royal Agricultural Society of England.)



The RACKHEATH SUB-TURF PLOUGH: invented by Sir Edward Stracey. (Manufactured by Barnard and Joy, Norwich.)

TO THE SECRETARY.

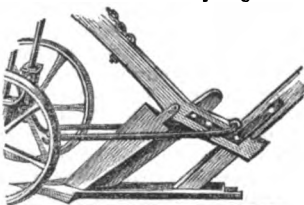
SIR,—In consequence of the applications of many of my friends for a sketch of my Sub-Turf Plough, I send you herewith such sketch. I have had it made as plain and as clear as I possibly could: I trust therefore that there will be no difficulty attending the making of other ploughs from it, if required. From the above sketch of the Sub-Turf Plough, it will easily be seen that it differs but little from the plough commonly in use in this county. The chief difference consists in the share having two wings instead of one wing, and in the absence of the mould-board or breast. Very little have I to add respecting the method of using, or the advantages derived from the use of the plough, to those which I stated in my letter to the Royal Agricultural Society (see Third Part of Journal, p. 256), excepting that, after an experience of nearly two years, it has fully answered my expectations; and I can give no better proofs of its merits than by the extensive adoption of it by my neighbours, in sub-soiling their meadows and pastures; and so perfectly satisfied am I with the results arising from the use of the plough, that I have despatched one of the ploughs to sub-turf some meadow and marsh lands, about twelve miles from this place; and hope to have about 120 acres sub-turfed between this time and the ensuing spring.

I send you also two sketches; one of an implement which I call the Pig's Head (from its shape



18 inches.
Pig's Head.

being similar to the head of that animal), for the purpose, when attached to the plough, of throwing



Sub-Turf Plough with the Pig's-Head attached.

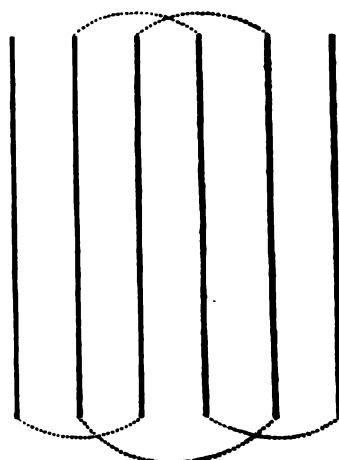
potatoes out of the ground, instead of forking; and when attached to the plough for that purpose, the coulter must, in the first place, be removed; and the plough, with the coulter thus removed and the pig's-head attached, will, with two horses and the driver, if properly worked ten inches deep, employ eight women or lads in gathering an average crop of potatoes: and the other is a sketch of the Iron Hands, for finding the potatoes when turned out by the plough.



Iron Hand.

The pig's-head plough, with the coulter removed from the sub-turf plough, and the pig's head attached, is worked by two horses abreast, and one man conducting it. No two adjoining rows of potatoes should be ploughed consecutively, lest the pickers should not have sufficient time allowed them to remove the potatoes thrown out (by the plough) of the preceding adjoining row, before they are covered by the potatoes and soil of the succeeding row. The ploughing, therefore, should be thus conducted; the perpendicular lines represent the rows of potatoes:—

No. 1. 2. 3. 4. 5. 6.



Go down row 1, up 3, down 5, up 2, down 4, and up 6, and so on through the field. The eight

women or lads are so placed in four divisions on the most convenient parts of the two rows to be next ploughed, one in each division carrying an iron hand to scratch out the potatoes removed by the plough, and the other carrying a basket into which they are to be gathered. Two men are also to be employed, each with a basket, to take away the filled baskets, to replace those filled with empty baskets, and to carry the filled baskets to the carts prepared for their reception.

Hard frosts have commenced very early this season; but by this plough, and the gatherers above stated, I have been enabled to clear $1\frac{1}{2}$ acre of land each day, and to secure the potatoes from the effects of the frost; of the great saving in the expense of getting I say nothing, as every potato-grower can calculate that. I am, Sir, yours, &c.,

Rackheath Hall, near Norwich,
30th Nov., 1840.

E. STRACEY.

MEETING IN FAVOUR OF AGRICULTURAL IMPROVEMENTS.

We have great pleasure in inserting a report from the Dublin *Evening Packet* of the proceedings at a meeting for establishing an Agricultural Society in Dublin, upon an extensive scale, after the example of the Highland Agricultural Society, and the Royal Agricultural Society of England.

A numerous and highly respectable meeting of the nobility, gentry, and resident landlords of Ireland, was held, Feb. 18, in the Royal Exchange, for the purpose of taking steps to promote agricultural employment in Ireland, and for the general improvement of husbandry. Among those present, were noticed his Grace the Duke of Leinster, the Earl of Kildare, Lord Carew, Baron Roebeck, Sir Michael Bellew, the Provost, S. F. Ponsonby, Esq., Mr. Finn, Mr. W. Sharman Crawford, Captain Pollock, Castlewilder; Dr. Litton, Dean Vignolles, Hon. Mr. Lawless, Mr. Michael Thunder, Hon. F. Ponsonby, Mr. Naper, Loughcrew; Messrs. Carew, D. La Touche, R. Phillips, H. Phillips, John O'Connell, M. Staunton, D. McCrummer, Larkhill; James Watt, Queen's Proctor, Tighe, of Woodstock; Thomas B. Dancer, of Modreny House, county of Tipperary, &c. &c.

On the motion of Lord Carew, his Grace the Duke of Leinster was called to the chair; and Mr. Naper proposed that Mr. Peter Purcell be requested to act as secretary, which proposition being seconded by Mr. Henry Grattan, M.P., was passed with acclamation.

Mr. PURCELL said he felt honoured by the appointment, which he thought one of the most important connected with the objects of the meeting. His numerous avocations would prevent his continuing permanently to act; but an efficient secretary would shortly be appointed, and, until then, he would attend to all communications that might be addressed to him. Mr. Purcell then read letters from the following noblemen and gentlemen, apologising for their absence, and expressing their entire concurrence in the objects of the meeting. He also stated that, notwithstanding the numerous circulars he had issued, he did not receive a single reply dissenting from their propositions.

The first letter was from the Duke of Richmond, president of the Royal Chartered Agricultural Society, recommending strongly the entire exclusion of politics from their proceedings. Letters were

also read from the Marquess of Lansdowne, Henry Herbert, Esq., of Muckross; Lord Gosford, the Roman Catholic Primate of Ireland; Lord Arran, George Alexander Hamilton, Esq.; the Bishop of Kildare, Right. Hon. Arthur Moore, Edward Litton, Esq., M.P.; Arthur Henry, Esq.; Thomas Hutton, Esq., M.P.; J. Talbot, Esq., M.P.; Anthony Richard Blake, Esq.; Mr. Blacker, Market-hill; the agents of the Marquess of Waterford and Marquess of Conyngham; Colonel Creighton, Sir S. O'Malley, Robert Fowler, Esq., son of the Bishop of Ossory, &c., &c.

The first resolution was proposed by the Marquess of Kildare. It was to the effect that, notwithstanding the natural capabilities of Ireland her soil remained unimproved, and was not cultivated after the manner of England and Scotland.

Mr. NAPER seconded the resolution. He congratulated the meeting on the appearance of the Marquess of Kildare in his right place, as the proposer of a resolution, having for its object the amelioration of the humbler classes. He hailed it as an omen that the landlords of Ireland were about to do their duty, and assured the meeting that the best way to forward the movement for Irish manufacture was to improve the condition of the agricultural labourer. (*Cheers.*)

Lord CAREW proposed the second resolution, stating that from the defective system of husbandry the general produce of Ireland is unequal to what might be expected from the richness of her soil, and the fertility of her climate.

Sir MICHAEL BELLEW, in seconding this resolution, hoped that all political and sectarian differences would be forgotten in this movement, and that Irishmen of all creeds and classes would join heart and hand in the present noble effort for the amelioration of their common country.

The third resolution was proposed by Baron ROEBECK, stating that in order to improve the condition of Ireland, a central association should be formed in Dublin, to be called the Irish Agricultural Association, to which all communications and suggestions might be addressed connected with their objects, and that same should be modelled as closely as possible on the principle of the chartered associations of England and Scotland. This resolution was briefly seconded by Sir GEORGE HODSON.

The fourth resolution was proposed by the Rev. Dr. SADLEIR, Provost of Trinity College. It moved the formation of committees in counties, by whom all information that could lead to the improvement of their several districts should be obtained and transmitted to the central association.

Capt. DUNNE, son of General Dunne, seconded it. Mr. SHARMAN CRAWFORD was about to propose the fifth resolution when our reporter left.

The subscriptions received amounted to 1,500*l.* Of this the Duke of Leinster contributed 200*l.*, the Marquess of Kildare 50*l.*, Mr. Purcell 100*l.*, Lord Cloncurry 100*l.*, and Lord Carew 25*l.*

The following is the committee appointed at the meeting:—

The Chairman, the Marquis of Kildare, Lord Charlemont, Lord Arran, Lord Gosford, Lord Fitzgerald, Lord Mountcashel, Lord Boyle, Lord Milton, Lord Clonbrock, Lord Dunally, Lord Ashtown, James Redmond Barry, Esq., Roscarberry; William Blacker, Esq., Armagh; Thomas George French, Esq., Marino, county Cork; Michael Furnell, Esq., county Limerick; George Meara, Esq., Waterford; The Provost, Trinity College; James Naper, Esq., Loughcrew; Captain Dunne; Richard Bourke, Esq.; Right Hon. A. R. Blake; John

Coddington, Esq.; Gustavus Lambert, Esq.; George Ensor, Esq.; Charles Roper, Esq., Fairfield; George A. Hamilton, Esq.; Charles W. Hamilton, Esq.; Robert Latouche, Esq.; C. D. Latouche, Esq.; David Sherrard, Esq., Thorndale; Robert Challoner, Esq., Coolatin; John R. Price, Esq., Mountrath; Hugh McCartney, Esq., Lissanane Castle; W. S. Crawford, Esq.; Hon. Edward Lawless; Christopher Fitzsimon, Glancullen; W. F. Finn, Esq., county Kilkenny; Sir Samuel O'Malley; Sir Hugh D. Massey; and Pierce Mahony, Esq.

THE GEOLOGICAL HISTORY OF THE HORSE.

BY MR. W. F. KARKEEK, V.S., TRURO.

(From the Veterinarian.)

Mr. Saull's elucidations proceed regularly from a fundamental principle as a basis, that the granite is the most ancient stratum, for on this all the other beds are successively deposited; and he is confirmed in this opinion by observations made in different parts of the earth, which tend to prove that such is the case, for not only in both Americas, but specimens have recently been brought from Australia, which exactly resemble the granites found in Devonshire, in Scotland, &c., &c.

Having established a basis, he then proceeds to chemical analysis, which proves that this rock is composed of quartz, mica, and felspar, in the latter of which only is contained a small quantity of calcareous matter, probably not more than two or three per cent.; but that this is the germ, as it were of production, of the shell, the fibre, and, ultimately, the bone, flesh, and food, so necessary for the support of organized beings when they come to be developed on the surface of our planet.

He then arrives at this conclusion,—that, by the action of water and the atmosphere, this hard substance is pulverized and decomposed, and in that state—when the circumstances are favourable, viz., under a tropical climate, and also saline waters—corallines would germinate from the root or basis before-mentioned: these being reduced to powder by the action of the element in which they grew, would in their turn, reproduce more, and thus the fertilizing principle would continue progressing; and so it is found on analysis of all the primary rocks, which exhibit a gradual increase of this necessary material in the ascending order.

Now, as this material is found to germinate spontaneously, as it were, in hot climates only, the author deduces some original conclusions, which are of great value and importance, with reference to the effects on our planet.

1st. That matter and motion are universal, and that nothing whatever can be completely passive or at rest.

2nd. That the revolution of a planetary body on its axis, and in its orbit round the sun as a primary body, being universal also, definite effects are thereby produced.

3rd. That these effects are, *a priori*, light diffused, which light being atomical, although immeasurably minute, the excitation of the atoms being greatest where the recipient body revolves most rapidly, or traverses the greater medium in space, namely, the equatorial parts; hence it follows, as a necessary consequence, that the greater heat will be diffused

on its central or equatorial zones, gradually decreasing towards both poles, where the motion of course is slower.

4th. That all parts of the earth's surface partake of the genial influence (so to speak) in regular successive order, requiring immense periods of time to accomplish it; and that our planet is, therefore, constantly and universally progressing, with reference to beings existing on its surface.

5th. That the elevation and depression of the oceanic waters in both hemispheres are also regular and constant, and most probably the effect of motion, although it may be distinct and subject to other laws than the changes of climate before alluded to.

6th. From these facts the conclusion naturally follows,—that our planet is regularly changing its position, *en masse*, with reference to the centre of the system, the sun; that is, although polar axes will always exist, yet that their position cannot be constant, but variable, producing those great changes of position, and consequently of temperature—requiring periods of time almost beyond our calculations, but which, by astronomical investigation, will no doubt ultimately be established.

These are the principles on which Mr. Saull establishes his theory, and which he satisfactorily proves by examining the various strata of the earth. Through all the primitive rocks, from the granite up to the clay state inclusive, no organic remains are found—hence their term *protozoic*, that is, before life; but the calcareous matter has gone on increasing, and in the next stage, in what was heretofore called *granwacke*, but now the upper *silurian*, we find life first developed in a few varieties of shell fish only: other beds intervene, almost destitute of organic remains, succeeded by strata of great thickness, containing corals in abundance, and exhibiting for the first time, their masses in the form and pattern as they grew, with trilobites, orthoceratites, leptera, cyathocrinites, orphis, euomphalus, &c., &c. Abundance of other fossils are found in these beds, indicative of a tropical climate and the preponderance of saline waters.

Above this appears the old red sandstone, in some places upwards of 3000 feet thick, in which are no corals and but few fishes and shells, which he considers to be proof that a cold northern climate then prevailed, and the structure of this great formation shews it to be marine.

Above the old red sandstone is the mountain limestone, in which the abundance of what was animated life strikes us with astonishment. We discern, for the first time, the nautilus, with much larger orthoceratites than before, accompanied with spirifers, producta, bellerophon, crinoides, with an immense number of corals, of innumerable varieties of species, and of the greatest beauty,—the clear indications of a very hot climate, and also the prevalence of the oceanic waters.

Next in the ascending order is the millstone grit, the greater part of which is destitute of organic remains. Now, although this formation appears to be oceanic, yet there are many stems of vegetables found in it, which most probably, by some of the violent perturbations of the surface by volcanic or igneous action, have been forced into it, seeing that these stems of plants are all filled up with sea sand. A limestone bed succeeds, in which we trace scales, jaws, and teeth of many species of reptile fish, with marine or fucoid plants, which is considered by the author as a convincing proof of the gradual increasing heat of the climate during this period, and as preparing for the next most important epoch,—namely, that of the great coal formation. Here it is

evident that the oceanic waters had receded from the northern hemisphere, and the surface was covered with magnificent plants, with palms, palmacites, shrubs, and arborescent ferns, with reeds in places of thirty or forty feet in height!—and it appears the atmosphere was replete with moisture as well as the surface of the earth. Baron Humboldt considers that at this period our climate resembled the hottest part of South America, whence some of the tributaries of the greatest river of the Amazons flows, which he graphically describes thus:—Fresh water streams running in every direction; vegetation in places absolutely impenetrable; the moist humid atmosphere producing rapid decomposition of the vegetation, and on the other hand, forcing it like a hot-bed, so that some shrubs grow more than twenty feet high in one year: hence we naturally account for the vast quantity of bituminous coal, which is clearly proved to be of vegetable origin.

After this period the saline waters appear to preponderate, since the stems of the plants, &c., are all filled up with sea sand; and the proofs appear complete, that the temperature was gradually growing colder, since, in the next beds, the fossils are less numerous, but they clearly indicate their marine origin.

In the ascending order he now arrives at the new red sand-stone, and this he finds almost a repetition of the old red so much below it. In its sandy and frequently finely lamellated structure there is abundant proof of oceanic action, and deposition. There are but very few fossils imbedded in it, yet small fossil fish are numerous towards the upper part of this bed: parts of the stems of trees are occasionally found, but they are completely filled up with silica. Now, as these could not have grown in the ocean, they must have become imbedded in this mass by other circumstances, probably volcanic action. The great masses of rock salt in this country are also found in this formation, which is a complete proof of its marine origin, and most probably those depositions and incrustations took place during the gradual decrease of the oceanic waters.

The author assumes that the temperature now increased in warmth, since in the lias formation, which succeeds the new red sandstone, the remains of crocodiles, ictyosaurus, and plesiosaurus, are found for the first time, with large nautilus; and ammonites of a great variety of species, with a vast abundance of fishes covered with scales, an infinite variety of shell fish, crustacea and testacea. Corals are also abundant in this bed.

Immediately above this, in the marlstone beds, he traces the impressions of plants, most of which resemble those of the southern tropics of the present day. Again a change, and the oceanic waters preponderate. In the lower oolite the fossils are principally marine, and perhaps these lived under a colder climate; but the fossil remains are now so numerous and intermixed, that Mr. Saull cannot discover those broad and well-marked lines of distinction which he has so clearly pointed out heretofore.

The coral rag exhibits an amazing growth of corals, many of them of the species growing at the present day in tropical seas. In the upper oolite he finds evidences of a warm climate, with its corresponding fossils; the most remarkable of which are those resembling the zamia or Cycadcoidea of the present forests of Africa, with large fossil trees. Again, we arrive at fresh water and mixed beds, in one of which, the Wealden, are found the remains of the Iguanodon, so admirably described by Dr. Mantell. This amphibious reptile must have been, when at full growth, not less than eighty feet in

length. Mr. Saull's museum is rich in the number of bones it contains of this most extraordinary being. There are vertebrae resembling those of a fish, more than eight inches in diameter; portions of the femur larger than those of the elephant of the present day; one immense claw, weighing nearly three pounds; and several pelvis, and metatarsal, and metacarpal bones, with many others.

In the green sand, and in the gault, he is of opinion that the climate was again cooler; but in the next beds, the chalk, the temperature unquestionably was hot; the fossils and even the strata itself, being entirely of marine origin.

At the period of the London clay, he supposes the waters gradually retreating. Then all the valleys were tidal lakes, as evidenced by the remains, which consist of crocodile, nautilus, turtles, crustacea, and testacea; and as the hills were uncovered vegetation succeeded, consisting of plants, the seeds and fruits of which are analogous to those growing in much warmer latitudes than ours at the present day, perhaps resembling that of Southern Africa. Thence he infers that the evidence bears out or supports the conclusions at which he arrives, namely, that with the decrease of the level of the waters, the heat of the climate increased, until in the succeeding period, when the first of mammalia or hot-blooded animals appeared; these are the palæotherium, anoplotherium, chiropterium, lophiodon, &c., mostly resembling the tapir of the present day. Again a change: the ocean returned. Marine beings innumerable are found at this epoch, with the bones of the walrus and the whale. This in regular sequence again changed. The waters receded, and we then recognise that interesting period when the huge mastodon, the noble elephant, the rhinoceros, hippopotamus, hyena, tiger, boar, bear, wolf, deer, and horse, were the inhabitants of our now northern climate.*

I have already illustrated in this paper the change from this epoch to the present, in attempting to unravel the history of the horse.

The remarkable change of character in the British strata has for a long period attracted great attention with geologists; but no one has brought forward such an interesting and satisfactory theory as Mr. Saull. He considers also that, in astronomy, he has both an explanation and a proof of his views, that, in the northern and southern hemispheres there is an alternate increase and diminution of the waters of the earth in successive periods of 25,800 years, being those of the precession of the equinoxes, and arising from the same cause; and he has satisfactorily established the proof of the change of situation in the pole of the earth by a number of places, which have changed their latitude and longitude within the last 200 years.

It would be foreign to the subject to enter into the astronomical calculations by which Mr. Saull so easily solves enigmas that have for a long time embarrassed the geological world; for it must be confessed that they account for, and are fully equal to explain, all the geological phenomena—all the formations, all the variety of strata, all the fossil remains, and all those circumstances which are inexplicable without it.

The motions of the earth are still going on silently around us, like those that have passed; and the fair regions which we now inhabit must, in the regular course of nature, be covered again by the ocean.

* Mr. Saull's interesting museum, supposed to contain the largest private collection of fossil remains in the kingdom, is liberally opened to the public every Thursday morning at eleven o'clock: no introduction whatever is required.

New layers of marine productions, of sand, gravel, and broken mountains, will overwhelm the soil to which we now feel such lively attachment; and, finally, new countries, or arrangements of land, will again rise in due course on those mundane sites which, at present, are occupied by civilized Europe, and by the northern parts of Asia and America.

For my own part, I see no moral evil to deplore in these changes. Nothing is effected abruptly, and man and animals are gradually warned to seek new habitations. The notices are slow, but unerring; and the human race will find fresh and renovated countries prepared for their subsistence, and abundantly fitted for their enjoyment, by these grand operations.

I have already adduced sufficient evidence that the sea has covered the land at different periods; and any one who views the interior of our country must be sensible that its swelling hills and low vallies, leading to the sea, must have been produced by the action of the oceanic waters. Volcanic agency from below has also produced many great and important changes in modifying and re-arranging the surface of the earth.

We will now endeavour to apply the knowledge we have obtained to investigate farther the ancient history of the horse.

Arabia has been frequently described by natural historians, from the very superior breed of horses found there from the earliest recorded times, to be the soil that gave birth to the primitive horse. I confess that at one period I entertained a similar opinion, and indulged my fancy-flight in imagining the first pair of horses located on some verdant plain in Arabia the Happy, and bearing a strong resemblance to the war horse described so emphatically in the Book of Job: "Hast thou given the horse strength? hast thou clothed his neck with thunder? Canst thou make him afraid as a grasshopper? The glory of his nostrils is terrible. He paweth in the valley, and rejoiceth in his strength: he goeth forth to meet the armed men. He mocketh at fear, and is not affrighted; neither turneth he his back from the sword. The quiver rattleth against him, the glittering spear and the shield. He swalloweth the ground with fierceness and rage; neither believeth he that it is the sound of the trumpet. He saith among the trumpets, Ha, ha! and he smelleth the battle afar off, the thunder of the captains, and the shoutings."

This is a magnificent description of a war charger,—but, splendid as it is, it will equally suit the horses harnessed to the war chariot of Queen Boadicea, which spread dismay and death in the breasts of the Roman legions, when Cæsar first invaded the shores of Britain. I do not by this remark mean to throw any doubt on the superiority of the Arabian breed of horses, but merely introduce it to shew that Great Britain also possessed a very superior breed at this early period. We have already seen that they existed on our island long before man was created; and the probability is, that the breed which the ancient Britons then possessed were descendants of the older race,—modified greatly, of course, in consequence of the change of climate which had gradually taken place during an immense period of time. Whether the peninsula of Arabia possessed horses, at the epoch to which our history refers, which we are certain that our country did, we have not the means of clearly ascertaining; the probability is, that she did not. We find Arabia to be an elevated table land, sloping on the north gently towards the Syrian desert, and encircled along the sea coast with a belt of flat sandy ground. The soil of this flat country, from its re-

gular inclination towards the sea, as well as from the large beds of salt and marine exuvia with which it is interspersed, appears to have been at no great geological period a part of the bed of the ocean. This flat country produces the principal pasturage, and contains rich groves of dates and other fruits. The interior of the country is chiefly burning sandy deserts, lying under a sky almost perpetually without clouds, and stretching into immense and boundless plains, where the eye meets nothing but the uniform horizon of a wild and dreary waste.

It is observed, that the sea, particularly on its western coast, still continues to recede. The reefs of madrepora and coral which abound in the Arabian Gulph, and in some parts rise several fathoms above the sea, are increasing and coming nearer the shore. Thus this flat fertile part of the country is constantly extending its limits. Muza is mentioned by Arrian as a sea-port of Arabia Felix; we now find it at a distance of several miles from the sea. In the southern part of the Arabian Gulph the sea is also receding from the land.

From these facts we come to the conclusion, that, at the period when horses were freely ranging throughout the continent of Europe, the present flat fertile land of Arabia, if not the whole peninsula, was covered with sea; and it appears altogether absurd to suppose that Nature would have placed her first-born pair of horses on such a desolate and sandy soil, even if it were not so.

That Great Britain was once connected with France there can scarcely be a doubt. The nature of the cliffs, similarity of strata, and other circumstances, sufficiently prove this; and all tends to increase the opinion, that Great Britain has as good a right to be considered as the primeval birth place of this noble animal as any other country on the globe. It is true, that the present state of our knowledge is not such as to warrant us in coming to any certainty on the subject, but, on the whole, I consider it to be very probable.

The earliest historical account of the horse comes from Arabia. The author of the Book of Job is supposed by Dr. Hales to have lived 184 years before the birth of Abraham. The scene of the poem is laid in the land of Uz, which Bishop Lowth has shewn to be Idumea. The Arabs also themselves trace the genealogy of their Nedjyds up to the time of Abraham; and when we consider the almost religious zeal with which the preservation of their pedigrees has ever been regarded, and the rigorous enactments which have been resorted to in order to preserve the purity of their breed, we certainly must give them some credit for their statement.

The Nedjyd breed, so serviceable in the cause of Islam, is supposed by the Arabs to have obtained, through Mahomet, the prophet of God, an occult capacity to read or repeat, tacitly, every day some verses of the Koran. It was one of their old proverbs—that, after man, the most eminent creature is the horse—the best employment is that of rearing it—the most delightful posture is that of sitting on its back—the most meritorious of domestic actions is that of feeding it; and they were taught by the prophet to believe that it was originally predestined for their special service. "When God," said he, "wished to create it, he called the south wind, and said, 'I desire to draw from out of thee a new being. Condense thyself, by parting with fluidity:' and he was obeyed." He then took a handful of the element, now become tangible, and blew upon it, and the horse was produced. "Thou shalt be for man," said the Lord, "a source of happiness and wealth; he will render himself illustrious by ascending thee."

To those who delight to study man in his pastoral simplicity—to moralize on the destiny of nations, or the rise and fall of empires—the history of Arabia cannot fail to be attractive. From time immemorial it has been celebrated for its precious productions, and distinguished as the home of liberty and independence; and the only land in all antiquity that never bowed to the yoke of a foreign conqueror.

The history of antiquity is not without traces of the early influence of the Arabs on the condition of neighbouring nations. The book of Genesis mentions Nimrod as the founder of the Babylonian empire, and we think we recognise in the mighty hunter an Arabian chieftain, like the modern sheiks of the Bedouins.

To the Arabian, principally, England is indebted for her improved and unrivalled breed of horses for the turf, the field, and the road; and it is in consequence of their very superior qualities that the honour has been given to Arabia, as being the country that cradled the first-born courser. But the superiority of the breed may be easily accounted for without this. The singular local situation of the country, the inequalities in the nature of the soil and climate, and the peculiar method and religious care with which the horse is reared there, are alone sufficient to account for their very peculiar organization.

The same observations will apply to their human population, being one of the most ancient people in the world, and, like their horses, having a physiognomy and character which are quite peculiar, and which distinguishes them generally from those which belong to the other parts of the globe. Their manners still present that mixture of rude freedom and patriarchal simplicity which we find in the infancy of society; and in the portraits of the modern Bedouins we may trace the features of their ancestors, who, in the age of Abraham or Mahomet, dwelt under similar tents, and conducted their horses to the same springs and the same pasturage.

There is a very important and interesting argument which presents itself from this geological inquiry, and which may be very properly considered as the theological history of the horse. It is very generally believed, that, previous to the fall of man, death was not known in the world, and consequently the brute creation must have suffered a change in their nature and instincts since that time. Thus we read in Milton—

"Of man's first disobedience, and the fruit
Of that forbidden tree, whose mortal taste
Brought death into the world, and all our woe."

And again—

"Discord, first
Daughter of Sin, among th' irrational
Death introduced through fierce antipathy:
Beast now with beast 'gan war, and fowl with fowl,
And fish with fish; to graze the herb, all leaving,
Devoured each other."

It certainly can scarcely require any argument to repudiate such ridiculous nonsense: Milton was a beautiful poet, but a very bad theologian; and I should not have noticed the subject here, had not those opinions been but lately introduced to the world sanctioned by the highest authority. I allude to the Rev. Wm. Kirby's *Bridge-water Treatise*, and the Rev. John Styles's splendid nonsense, which obtained the prize of one hundred guineas for the best *Essay on the obligations of humanity as due to the brute creation*.

Both these authors are of opinion that the different orders of animals originated in one quarter of the globe, and from which they subsequently spread themselves, according to circumstances, over the rest of the surface; and to support this argument, they

alter the natural instinct of the greater part of them. The ferocious hyens, the savage lion, the treacherous tiger, and the whole race of carnivorous animals, are turned into herbivorous and ruminating beasts!

I need scarcely tell you, that those opinions are as much opposed to theology as they are to philosophy, since the sacred writings give no sanction for the belief that animals were included in the sentence of death pronounced upon the fall of man.

No one, who attributes the origin of the world to the power and fiat of the Almighty, can fail to admit that all natural phenomena, and the laws that regulate the material universe, are manifestations of the will of the same Creator; "fire and hail, snow and vapours, wind and storm fulfilling his word; mountains and all cedars, beasts and all cattle, worms and feathered fowls." No consistent believer, therefore, should be apprehensive of any discrepancy between those unwritten manifestations of his power and godhead, and the written revelation he has vouchsafed to us in his holy word. The same universal law which now governs our planet and its innumerable inhabitants, ruled when they were first created—when angels' harps rolled their deed notes over our world, as it sprang forth in its young and peerless beauty from the hands of the Deity. On every hand were exhibited the bright evidences of its Maker's mysterious power, then, as now; and all the functions of life, and all the orders of animated existences, obeyed their Creator's fiat. The finger which first gave to them their unalterable law has never touched them since: they have never had but one principle to govern them—one law to guide.

There cannot be a doubt, then, that the instincts and habits of the inferior animals have never been altered, and that they were all created in their different localities, on soils and in climates well and wisely adapted to their various constitutions.

LORD WESTERN'S LETTER ON SOWING WHEAT.

SIR,—In the *Farmer's Magazine* for the present month, there is a letter from Lord Western on sowing wheat; a portion of which appears so extraordinary, that with your permission, I shall make a few observations on it, though I am far more at home when directing a plough than a pen, but must be as intelligible in my new occupation as my command of language will permit me.

His lordship lays a great stress upon wide drilling, and a large quantity of seed, and ascribes his superior crops to those causes. Now certainly, where the greatest quantity of seed of any sort is sown, there will the greatest quantity of plants be; but that the greatest quantity of plants per acre will insure the greatest crop, is what I am very much disposed to question, especially when they are crowded together, unless I know all the peculiarities of the situation; and the reason for so doing, I will explain as well as I can.

If I recollect aright, in a letter of his lordship's of a year or two ago on the same subject, he incidentally mentioned that he farmed *high*; now when a nobleman says so himself, depend upon it, his land is more inclined to plethora than exhaustion, and when heavy land in first-rate condition is sown with wheat, it would be surprising indeed if it did not produce a good crop; this, in my opinion, is the mainspring of his success, in spite of thick sowing, and not in consequence of it.

Some years ago, I was one of those petty experimentalizers whom his lordship disposes of so unceremoniously; the first trial was in a two-years seeds ley, ploughed in furrows of the exact width of his drills, pressed with the land-presser, and sown broad-cast; the field was sown at the rate of three bushels per acre, in the second week in October. As I knew the land was pretty certain to plant well, I resolved to sow a "land" at the rate of six pecks per acre, which I accordingly did, to the annoyance of my two labourers, who were not slow in observing—"it was a pity to waste such a feat bit of land," as it was "sure to be good to nought." When the field was in green blade, that part did not look so gay as the rest, by far; and in the spring, when the field began to grow up, it grew *sideways*, and tillered most villainously; but when it *did* look up, there was no inferiority then; the same men reaped the field at harvest, and acknowledged that it was not only equal, but superior to any other part of the field; there was a good crop on the whole, but the stocks on that land were more in number than on that on either side of it; there were no small and puny ears (which was not the case with its neighbours); the straw was also stronger, and the ears larger and finer than the average of the field. I am sorry I had not leisure to have the ridge and its neighbour thrashed separately; it would have made the data more perfect. The next year I sowed a small part of a dry gravelly field in the same manner, but from some cause the whole field lost plant to such an extent, that my experiment was somewhat of a failure; the three bushels per acre were not thicker than my six pecks of the year before, and the upshot was, that my trial plot was too thin. The year following, I sowed two acres with three bushels; the land of similar quality as that of my first essay, and the result was equally satisfactory: I had 36 bushels per acre on the whole field, and should have had more, but that it was all "laid," but my two acres not so flat as the rest. For the next two years my wheat was upon a gravelly soil, so that I there dared not diminish my quantity of seed; and when my cool land came round again, I was prevented from acting up to my previous intentions by the following circumstance, and which may be applicable to many a locality besides my own:—Since corn got up in price these three or four years, our rents have not been raised, but game has been preserved and increased on the estate on which I am a tenant, to such an extent, that to have a crop somewhat thin in plant, is equivalent to having no crop at all; "upharsin" is written on it, which being interpreted is, "this crop is divided, and "given to the hares and rabbits:" they do not make such havoc in a thick crop, but woe be to that luckless wight who possesses a thin one; they will spare him the trouble of shearing it. I had four acres of spring wheat this last season, which came up rather thin, but very regular; it was heavy land; had been oats, rape, and turnip, mixed, dressed with ten loads of dung and six chaldrons of lime per acre, and furrow-drained; then barley, red clover, and now wheat; it bid fair for a very pretty crop, had it had fair play; but was cut up so by game, that instead of twenty-eight bushels per acre, which it would have produced, judging from patches of it which escaped, I had ten, and no more.

My own humble opinion, based upon observation and some experience, is, that upon all soils tolerably certain to plant, when the land is in fair good condition, and not much game, the chances of a good yielding crop are in favour of a moderate quantity of seed rather than a profuse one; and that small

pined ears, (what we here call "underslain") will be far more numerous in the thick sown crop than the tillered one. We all know that vegetables thrive best when not too much crowded, from the bean to the plantation of forest trees, and wheat is no exception to the rule. On good land in high condition, a good crop may generally be calculated on, let it be sown almost as it may; but I would respectfully suggest that his lordship's plan would have been much more decisive and satisfactory, had he tried a comparative experiment or two; such as drilling each alternate ridge of a whole field with a large quantity of seed, and a moderate one; then reaped, thrashed, and measured them separately, and stated the produce of each; I could almost answer for it that it would be in favour of the smaller quantity of seed. I have trespassed on your time to a far greater extent than I intended at the outset, but am so unused to expressing my ideas on paper, that instead of being *multum in parvo*, it is the reverse.

Yours truly,

Feb. 17.

A SMALL TENANT FARMER.

P.S.—Where in the name of all that is wonderful does Mr. Matson get his manure from, to be able to give his Swedish turnip land such a quantity as forty tons per acre? At that rate I should think his other turnip land gets not less than twenty, unless he robs Peter to pay Paul: he cannot make it from the produce of his own farm—perhaps he is conveniently situated for procuring it from other quarters. One thing I know, I feel tolerably well satisfied when I can give mine at the rate of ten tons; my land being worked on the five years course—turnips, eaten on the land, barley, two years, seeds depastured, and wheat; alternately with turnips, barley and red clover, wheat and beans.

ON MAKING PONDS.

SIR,—Observing one of your correspondents to be making an enquiry as to a method of making ponds, I take the liberty of sending you, for his information, the method practised some time ago by Mr. Robert Gardiner, of Kilham, in the East Riding of Yorkshire.

Let a circle be marked on the ground sixty feet in diameter—more or less, as the person chooses, or the size of the pasture may require a supply of water—and if of that diameter, let it be hollowed out into the shape of a basin, or bowl, to the depth of seven feet in the centre; when the surface of this hollow has been raked smooth, let it be well beaten over, so as to reduce it into as even, uniform, and firm a surface, as the nature of the ground will admit of; on this, well slaked and screened lime must be uniformly spread with a riddle, to the thickness of two or three inches; the more porous or open the ground, the greater will be the quantity of lime required: this lime then must be slightly watered, to make it adhere firmly to the place, and great care must be taken to spread it equally, so that no place may remain uncovered—as on the lime depends, more than any thing else, the success of the work. On this lime must be laid a bed of clay, to about the thickness of six inches, which being moistened sufficiently to render it ductile, is to be beaten with mallets, or beetles, into a compact solid body, capable of being trodden upon without impression or injury. Great care is to be taken in laying on this mass of clay uni-

formly, and beating it into a compact body: for this purpose, no more must be spread at a time upon the lime than can undergo the beating, while it retains a proper temper or consistence for the purpose; after the whole is thus finished, it is gone over several times with the beaters, and sprinkled each time with water, and care is taken to prevent any cracks being formed, which might entirely destroy the power of retention.

Pure brick clay is not required in particular, but any tenacious earth, that by beating will become a solid compact body, will answer the purpose. As soon as this operation has been duly performed, the whole surface of the clay is covered, to about the thickness of a foot, with broken chalk, fine gravel, or the chippings of mouldering stone, or limestone, to prevent any injury being done by the treading of cattle. It is necessary to observe, that coarse stones must not be made use of, as they are liable to be displaced by the treading of cattle. They are also liable to be pressed into, or through the clay, or to be rolled down to the bottom of the pond; under all which circumstances, the beds of clay and lime are liable to be broken, and the water consequently let out of the pond. Sometimes the clay is covered with sods, the grass side being laid downward as a support to the gravel, by which some saving of covering may be made; or a covering of earth may be used, where gravel and such like are scarce. After the clay has been well beaten, some workmen water the surface of it, and fold sheep or pigs for a considerable time upon it—the treading of which is found to be serviceable in rendering it more compact.

The best season for making these ponds, is thought to be in autumn, as they are then likely to be filled the soonest, and the least liable to crack before they are filled. Should the weather prove dry at the time they are finished, it is well to cover the surface with straw, or litter, to hinder them from cracking.

These ponds are usually made at the foot of some declivity where, after heavy rains, water may run into them from the road, but many are placed without any such assistance, it being found that the rain which falls upon their surface is in general sufficient for a supply, after they have been once filled; for this purpose snow is sometimes collected and heaped upon them the first winter after they are finished. One of the size above given, he says, may be executed for about 15*l*., and will contain above 700 hogsheads of water. One of forty-five feet in diameter, by five in depth in the centre, will contain about 400 hogsheads, and may be executed for about 12*l*. This is a vast supply at a small expence. The water thus preserved is of an excellent quality, when not injured by the cattle.

Much might be said upon the excellence of this plan, but I will refrain from trespassing upon your valuable columns, by giving any observations of my own, thinking they may be uncalled for.

I am, Sir, your obedient servant,

A YEOMAN OF KENT.

ON PLOUGHS.

SIR,—I observe in the *Express* of this week, a communication from a "Constant Reader" referring to a letter written by me in your paper a short time since, in which I gave an account of the double plough that has been originated by Mr. Pusey. He expresses much interest about the plough, but some

hesitation as to my correctness—a doubt with which a nameless writer should never be offended; but since others may feel it likewise, and as the advantages derivable from this plough are really important, I will endeavour to give a more authentic form to my report, by adducing authority much better than my own to support it—that of Mr. Pusey; and I trust he will excuse me for using his name to assist in giving publicity to that which is too advantageous for concealment: he speaks of it as follows:—

"I have tried Ransom's double-plough which he made for me, and have found it answer extremely well on a more sandy loam than that I have just been speaking of, (which is sufficiently adhesive to stick to, and fill up the hollow of a curved mould board;) two strong horses drew it with ease on a clover ley; this last may be called a Norfolk soil. I think in many places it would answer with three horses, where two horses with a single plough had not quite enough to do." Now, though these remarks are not exactly coincident with mine, the difference arises merely from the kind of plough with which he has compared it; and when he alludes to two horses not having quite enough to do in a single plough, he means Hart's, which is very light; but in the Scotch iron-plough, used here and most probably by your Rosshire correspondent, two horses have always quite enough to do; for I have ascertained by a very accurate dynamometer, that when the draught of Hart's is 13*st*., that of ours is 20*st*.; therefore, in the instance to which he refers, three horses would find the double-plough an additional labour to what two horses did the single plough; but where the Scotch iron-plough is employed, a decided relief; for in the first case, three horses would have to encounter a resistance of 26*st*., and two of only 13*st*.; but in the latter, two horses would draw 20*st*., and three only 26*st*., which is the proportional draught of the double-plough; and this, I think, accounts for my having used somewhat stronger expressions in its favour than Mr. Pusey has done to me. But if my statement be borne out, a "Constant Reader" wishes to learn all particulars relating to this plough, which perhaps may be of service to others as well, therefore I will assume it to be so, and satisfy his wish. The work it makes is in all respects excellent, particularly in the singular squareness of its furrow-slice, and the perfect manner in which it turns over; but at the same time, there is no "practicability of substituting it for the single plough," as it does not work well in ground uneven—either from natural irregularities or small ridges, and a single plough is the best to open and finish the ridge. But, though it will not quite substitute the single plough, yet I find it so useful as its ally, that I have sent to Ipswich for another, where your correspondent may get it of the Messrs. Ransome, with steel breasts and shares for eight guineas, and with these parts of cast iron for seven. But persons in this part of the kingdom will soon be enabled to procure it nearer home, as it will be made by Mr. Marychurch, of Haverfordwest.

At the close of the letter, it is remarked that if this plough is found to answer well, it will diminish the expence of farm horses by one third; and as far as most of the ploughing is concerned, so it will, and to the same extent the expence of farm servants to one-half; and though the whole of the ploughing is not all the work required of either men or horses, yet it is a very important part of it, and unquestionably on a large farm it may be much expedited and a reduction made in the establishment by using double ploughs.

I am, Sir, your most obedient servant,

THELAWNY FREEMAN.

Eastbrook, Haverfordwest, Feb. 14.

THE EPIDEMIC AMONG CATTLE.

TO THE EDITOR OF THE SALISBURY AND WILTS.
HERALD.

SIR,—The following remarks on the epidemic now so generally prevalent may not be inadmissible, inasmuch as there is much contrariety of opinion as to the nature and causes of the malady. I believe it to arise from a peculiar state of the atmosphere, but in what this state consists it is impossible to say, as the minutest inquiries into the various states or conditions of the air, during the prevalence of any epidemic, have never yet detected any difference whatever between the air as then existing, or as existing just prior to the epidemic shewing itself, and the air at any other period. We are in the habit of hearing of marsh effluvia, or *miasmata*, animal or vegetable poisons, produced from the decompositions of such matters in large quantities; or, again, of a poison arising from too large a number of animals being confined in one space; yet we are not able to prove by positive demonstration that such states do actually exist; but we judge that they do exist from inductive reasoning drawn from the effects produced. In the same way we may judge of the cause of the epidemic at the present time, and we are further assured that this is the origin, from the fact that, though it may be contagious in certain stages (which I very much doubt), yet it is so very seldom that it can be accounted for in this way, that we may, with great propriety, consider it as not being contagious. The next point is, in what manner the animal economy is affected by this state of atmosphere. The effect is through the brain and nervous system, and the state brought on is that of debility. This change from health to disease is not sudden, as we find in acute inflammatory attacks; but one that is slowly, but surely, acting for a considerable period; and though it may appear to a casual observer to be sudden in its attacks, yet to one accustomed to accurate observation it will be perfectly apparent for many days, nay, often weeks, before. I have referred the disease to a debilitated state of the brain and nervous system;—every symptom proves this to be the case. The state of the blood, the pulse, the state of the digestive organs, the staring coat, the pain and stiffness of the limbs, the general disposition to form watery swellings, the cough which is generally feeble, the constipation of the bowels or spontaneous purging, the soreness of the mouth and throat, and the general tendency to a putrescent state of all the secretions. Such being the state of the system, how erroneous must be the abstraction of blood—for any one the least conversant with the common principles of medical management would at once see the impropriety of adding to the mischief; and though many have been bled, and have recovered, yet this is no proof that such treatment is proper; for nature will bear a great deal of abuse before she relinquishes her efforts to bring about a better state of things, and recovery often ensues in spite of every effort that is made, unintentionally, no doubt, to the contrary. But whenever there is any doubt as to the proper mode of treatment to be adopted the first thing that is done is to *bleed*! I have paid great attention to the subject, and have scrupulously abstained from bleeding in my own practice, but I have had very many come under my treatment after they have been bled, and any one could detect by the *feel* of the skin alone, on the third day after the attack, which animal had been bled, and which had not. I am not speaking of a

few cases, but of many hundreds which have passed under my notice, and, of course, in every variety and stage of the disease. I have found that the proportions of deaths among cattle which *have not been bled* have been from *one to two* per cent., while of those that *have been bled*, *three to four* per cent. I am now referring only to what I know of my own knowledge; but, from what I have been told, I am disposed to believe that the proportions in many districts have been greater. Further, those that have been bled have been on the average at least as long again under treatment, and have invariably lost their condition; while those under the opposite treatment have lost but little, and have quite recovered their healthful appearance by the time the others have become only well enough to be dismissed from the sick list; and I have often found a cough after bleeding, which it has been very difficult to get rid of, and which has not been as in those cases where bleeding was not had recourse to. Perhaps I may be thought severe in my remarks on bleeding; but I know I am combating the prejudice of the many, and it is only by pointing out the impropriety in plain and strong language than an injurious practice can in any way be met. My only wish is to save the loss of much valuable property hereafter, for the mischief is not yet at an end; for we have to look for the future ill effects—such as the disease of some one or other of the important organs, or in the loss at the time of parturition, or of the young animal a few weeks after birth; and, as we have cause to apprehend that such will be the case in too great a number under the most favourable circumstances, we ought to guard against it as much as lies in our power; for I am fully persuaded that bleeding is one of the surest means of adding to it. The proper treatment is extremely various, and must be entirely regulated by the condition and appearance of the individual animal attacked. The first thing is to get rid of any obstruction there may be in the alimentary canal, by gentle cathartics; and, secondly, by mild stimulants increase the power of the system generally. It is sheer folly to pretend to give a prescription adapted to or proper for all cases, as what will restore to pristine health in one case, will destroy life in another. It should be borne in mind that, in proportion as the digestive organs are complicated, as in cattle or sheep, so do we find the greater susceptibility of the nervous system to derangement, which will account for the proneness of cattle and sheep to have a second, or even a third attack. It is highly desirable that the disease should arrive at its acme, or the animal will be more liable to a second attack, for there is a poison generated in the system which requires to be matured and got rid of before recovery can be complete. The more animals are exposed to the vicissitudes of the weather, or underfed, the more severely are they proportionately affected, and the longer do they suffer from it. Thus it will be seen, upon examination, that every circumstance throughout its course, both previous to, and during the course of, the distemper, confirms the view I have taken of the condition of the system—namely, that of debility accompanied with low fever. Every thing that has a tendency to lower the strength of the system is injurious. Rowels or setons are improper. Laxative medicines must be administered just sufficient to relieve the bowels,—the smaller the dose that will effect this the better for the animal; all beyond this will prove injurious.

W. A. CHERRY, Veterinary Surgeon.
Andover, Jan. 14, 1841.

ON THE MEANS OF CALCULATING THE NUMBER OF CALVES

WHICH WILL PROBABLY BE PRODUCED BY A HERD OF COWS.

BY EARL SPENCER.

(From the Journal of the Royal Agricultural Society.)

It would be a considerable practical advantage to breeders of cattle, and particularly to those who purchase cows, if there were any means of ascertaining whether a cow was certainly in calf at an early period of her gestation. I have found that what I believe to be the ordinary rule among farmers, viz., that when a cow has not returned to the bull for six weeks after she has been bulled she is certainly in calf, is by no means to be depended upon; and having observed, as I thought, that this was the case in my herd of cattle, I resolved in the beginning of the year 1837 to ascertain with accuracy—first, whether a cow, not having returned to the bull for six weeks, was either certainly or to a very high degree of probability in calf; and secondly, if it should prove that this was not the case, at what length of time after she had been bulled this certainty might be assumed. The result, I am sorry to say, has been to prove that the cessation of taking the bull for six weeks is so far from indicating with any certainty that a cow is in calf, that, in my herd at least, very nearly half the cows who have gone six weeks will prove not to be in calf, and moreover that there is no period at which a man can feel the certainty required.

I am aware other modes of ascertaining this fact have been suggested by a very able and experienced veterinary surgeon, in the Journal of our Society. He stated that by placing your ear close to the cow's flank you may at a very early period of her gestation hear the double pulsation of the fœtus, and be satisfied whether she is in calf or not. I have tried this frequently with cows not only at early but late pe-

riods of their gestation; but I must confess that my sense of hearing has hitherto never been sufficiently acute to perceive the slightest intimation of the existence of the fœtus. I have tried the use of a stethoscope, but from want of practice in the management of the instrument, or from some other cause, I have with this also been equally unsuccessful. I have also seen a surgeon well accustomed to the use of the stethoscope try it and fail as completely as myself. As to the other modes of examination which are suggested in the same paper, in addition to other objections personal to myself which I should have to making use of them, I conceive they would have so great a tendency to make a cow slip her calf, that I should be very sorry to allow them to be employed with any cow of mine which I valued.

The result, therefore, of my experience is, that no man can be certain that a cow is in calf until he can feel the calf by what is called punching the cow in her flank—an operation which is perfectly safe, unless performed with most extraordinary and unnecessary violence. But as this cannot be done until the cow has been pregnant at least six months, and in cows in good condition sometimes till much later, the value of this mode of ascertaining the pregnancy of a cow to breeders of cattle or purchasers at sales is not very great.

Although I thus failed in effecting the object which I had in view when I commenced the series of observations which I am about to state, they have led to results which I find very useful. The mode I adopted was this: I noted each cow in succession who had not returned to the bull at the end of six weeks, and when 50 were so noted I commenced a fresh series. I then noted how many of each 50 went 7, 8, 9 weeks, and so on to 21 weeks, before they returned to the bull, and how many proved in calf, together with the number of live calves which they produced. I have now the results of 8 of these series, of 400 cows, who have gone 6 weeks before returning to the bull. I here insert the different series, together with the sum total of their results:—

6	7	8	9	10	11	12	13	14	15	16	17	18	21	In calf	Calves
50	45	41	39	38	37	34	33	32	32	30	29	29	28	26	26
50	44	39	35	33	32	30	28	27	27	27	26	26	26	25	23
50	41	38	36	31	31	30	29	28	27	27	27	27	26	23	17
50	45	41	36	34	31	30	27	26	26	26	26	24	20	20	16
50	47	44	43	43	43	42	40	39	39	37	36	36	35	33	31
50	45	42	36	35	34	32	30	26	24	24	24	23	20	20	18
50	42	41	39	37	36	35	32	31	30	30	30	30	28	26	24
50	48	47	41	41	39	39	36	36	36	34	34	34	31	29	26
400	357	333	305	292	283	272	255	245	241	235	232	232	221	202	181

It will be seen from this table, that the variations between the different series are not very great, and that a man applying a calculation founded upon the sum-totals of them to any one would not err more than must always be the case in any calculation founded upon probabilities. Having found this to be so with respect to cows who had not returned to the bull for 6 weeks, I applied the same principle to all the cows who were bulled, in order to ascertain what was the probability of each cow bulled going six weeks. This I began doing in the commencement of the year 1838. I have now taken notes for this object with respect to 1000 cows bulled, and I here

subjoin a table taking the series at 200 cows in each, which will show the results of my observations:—

Bulled.	3 weeks.	4 weeks.	5 weeks.	6 weeks.
200	158	115	107	87
200	137	92	85	71
200	142	87	80	72
200	148	94	81	78
200	159	87	74	63
1000	721	475	427	371

The small variation between the different series in this table is very remarkable, I having expected that it would be much greater than in the former one.

By the means of these tables, I have now the opportunity of calculating—first, the probable number of cows who have not gone six weeks, who will go that time; and of those who have gone six weeks, the probable number who will prove in calf.

Although therefore, as I have said, I am not able to arrive at anything like a certainty with respect to any individual cow proving in calf, I have been able to calculate the number of calves I shall have from all or any given number of the cows bulled with much greater accuracy than I expected. In order, however, to make this calculation, it is necessary to make an allowance for the number of pregnant cows who may either slip their calves or produce dead calves at their full time. Not having any data at the time I began these observations on which to ground this allowance, I took it at one in eight, which proves to be too great; for, as it will have been seen from the first table which I have inserted, I have had 181 live calves from 202 cows in calf, and consequently I ought only to have deducted one in ten, instead of one in eight; and therefore the results of my calculations of the probable number of calves I should have in any given period have generally proved rather too low. In order to show that the principles which I have adopted may be practically applied, I will state several of the trials which I have made of my calculation.

On the 22nd of October, 1838, I calculated that I should have 48 live calves previous to the 1st of August, 1839. I had 49.

On the 24th of January, 1839, I calculated that I should have 53 live calves previous to the 1st of November, 1839. I had 55.

On the 18th of August, 1839, I calculated that I should have 37 live calves previous to the 25th of May, 1840. I had 41.

On the 21st of October, 1839, I calculated that I should have 40 live calves previous to the 1st of August, 1840. I had 48.

I have made several other calculations of the same kind to test my principle, but it would be tedious to state any more of them. This last is the one in which the event has differed the most from the expected result. It will be seen that in all these trials of my system I must have included in my calculation all the cows bulled up to the day of making it, for the period over which the calculation extends equals the ordinary time of the gestation of a cow; and therefore I think the accuracy with which the result of the calculations has agreed with the event proves that a table of odds may be constructed, which upon any given number of cows will prove tolerably correct.

It is so obvious that it is hardly necessary to state how I make these calculations. Taking the first table I have given, for instance, I divide the sum total of the numbers in each of the previous columns, and the decimals which will be the product of such divisions, will show the probability of a cow proving in calf who shall not have returned to the bull at the end of each week respectively. This process I apply to ascertain the probabilities in the other table. I then multiply the number of cows who have gone 21 weeks by the decimal belonging to this column; the number who have gone 18 weeks and not 21, the number who have gone 17 and not 18, and so on, by the decimals respectively belonging to these columns. I add the products of these multiplications together, and the sum total gives the probability of the whole list: I mean, it gives the probable number of cows who will prove in calf.

From this must be deducted the number who will probably not produce live calves, according to the allowance to which I have referred above. With respect to the other table, I treat it in the same manner, and assume the probable number of cows to go six weeks as if they had actually gone that period, and add it to the first column of the first mentioned table.

If I thought that the observations which I have made would apply to cattle generally, as well as they appear to have done to my own herd, I should think them of considerable use; but I do not think this is likely to be the case. My object in breeding is to breed bulls, and I am therefore constantly in the habit of persevering in the attempt to procure calves from cows, and by bulls who are so uncertain as breeders that a farmer in ordinary circumstances would have put them to feed and have sold them to a butcher long before I do. But I think that, if any breeder will take the trouble to make the same sort of observations with respect to his herd which I have with respect to mine, he will very soon arrive at full as great accuracy in the results as myself. I am very desirous that breeders should attempt this, and for this reason it is that I have prepared this paper. Because, if it should prove, by a number of breeders being induced to give the result of their observations so made to our Society, that a table of probabilities applicable to cattle generally can be established, it appears to me that it will be a discovery of great value.

ON BURNING SOILS FOR TURNIPS.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—“A Wiltshire Farmer,” in your last, wishes to draw attention to the practice of burning of soils for turnips, and being an advocate for it on *certain soils* myself, I would state a practice that appears to me to be very judicious. In burning soils, persons acquainted with chemistry will admit that the chief components of the clay and sand cannot be evaporated; the sand remains the same, and the water which the clay held in affinity will be evaporated, by which it will lose about half its weight; what will evaporate will be a portion of the organic manure—all the animal, and part of the vegetable manure. Then, to avoid this, let there be little in the soil at that time. Our summer tills are generally made on heavy lands in Suffolk, after wheat; then let the manure be applied to the crop preceding the wheat, and but little will remain after the wheat. There is always some inert vegetable fibre in the soil, which, by the process of burning, will be rendered food for plants. I think applying the manure for the crop preceding the wheat, on clay lands, is of double importance, as we generally get a good crop of beans or clover, which ensures a crop of wheat. The leaf of the bean, as said by Sir Humphrey Davy, contains azote, or something analogous to it; the plant thus makes more leaves, which drop directly available for the wheat-plant. As much may be said of clover, as increasing the quantity of available manure, and then for the soil, when it is burnt, it is porous in texture, and ready to receive air and water to convey food readily to the plant. Burning the soil is an alternative; it does not add a source of riches to the soil, but renders a part of what is there, and what is applied, available. I do not agree with “A Wiltshire Farmer,” that the barley is generally better,

is well after the turnips; the turnips are frequently better after burning, but the barley is not so good is where we apply farm-yard manure for the turnips. My practice is to burn a light coat, about 20 chaldron oads per acre, and then carry on about 15 loads of manure raw from the farm-yard; this long manure will not be much benefit to the turnips, but will be ready for the barley; thus each crop will have its share of food. Thus hoping, Mr. Editor, if you insert this, it is only expressing my humble opinions to my brother tillers of the soil.

Jan. 21:

A SUFFOLK FARMER.

THE ADVANTAGES OF STORING SWEDES AND TURNIPS.

TO THE EDITOR OF THE LINCOLNSHIRE CHRONICLE.

SIR,—As this is a season in which I fear the turnips and Swedes on many farms will suffer from the severe frost, I am desirous of making known a system I have for some years practised. Immediately the Swedes and turnips have done growing, I pick them out of the ground, and stack them in small heaps straight up the lands, and cover them with mould. I then run the Biddle's harrow through the ground to clean the land and move the soil, and sometimes I shallow-plough the land between the heaps, and when the fold is put upon the land, the shepherd has only to move the soil from the heaps and strew the Swedes about, unless it is considered preferable to cut the Swedes, which I always do for my teggs and fatting-sheep with the Banbury machine. Thus I consider I keep my land fresh, and save a great quantity of labour and food from waste, especially in a season like the present. My sheep have consumed and made good work of the usual quantity of turnips and Swedes given to them, by my neighbours, who do not adopt this system, have had extra quantity of ground allotted to the sheep lately, but they only consume the part of the Swede that grows out of the ground, the remainder being so far under ground that the shepherd finds it impossible to pick it out, and therefore it is left to rot in the ground. The expense of getting the turnips up and moulding the heaps round is from 5s. 6d. to 6s. per acre. I consider by this system I grow more barley to the acre, as we are all aware that a crop of Swedes, after a certain time, draws the land as much, if not more, than a white crop. No game can get to the crop, but I see my neighbour's crops are very much destroyed by the hares, rooks, wood-pigeons, &c. Moreover, it matters not if the hounds run over my farm. I live in a sporting country, and the fox hounds are often across my farm, for I am situated between two large covers. In fact, the Swedes and turnip crops are the only crops I consider can be damaged by a field of horsemen riding over. The first year I was on my farm, the hounds were frequently crossing my wheat-field, and as the season was very wet, and the field of horsemen in this neighbourhood generally consists of from 200 to 300 horsemen, I considered the prospect of my wheat crop completely destroyed; but my neighbours seeing my distress, and having experienced the same thing repeatedly themselves, they told me not to think any thing more about it, they fancied I should not see any difference in the harvest. To my surprise and delight I found them quite right, as the field alluded to, produced me quite as good a crop of grain, as any other on my farm. I am now always glad to see the hounds about, knowing the immense benefit we farmers all derive from an establishment of fox hounds in the country. You may rely upon it the Swedes and turnips are the only crops the tread of horses do damage to through the winter. I cannot help congratulating myself on saving my Swedes all stacked, and my land turned up to take the benefit of this fine and healthy weather. In the hope that this plan may be adopted more generally, I am, Mr. Editor, yours obediently,

A LINCOLNSHIRE FARMER.

ON THE EARLY HORN CARROT.

By LORD DUCIE.

MY DEAR PUSEY,—I send you, as you desired, an account of the early horn-carrots grown on my Hill farm, at Woodchester. The land on which they were grown is a stone brach, on the table-land at the top of Procester Hill, and certainly not land apparently likely to grow carrots of any sort.

I should first state, that the early horn-carrots are about five or six inches long, and as thick as a man's fist, and have been generally grown only as garden carrots.

The field in which they were grown was a clean wheat-stubble, which was ploughed five inches deep (the full depth of the soil,) in December; a Biddle's scarifier was put over the land twice previous to the seed being sown on the 22nd of March, without any manure. The seed was well mixed with two or three bushels of ashes, and sown with a Suffolk drill, with twelve inches between the rows.

The quantity produced was 263 lbs. a perch; or 18 tons, 15 cwt. per acre. The expense of cultivation and harvesting amounted to about 6l. per acre.

The land on which these carrots were grown will not, with the best cultivation, bear on an average so much as 14 tons of Swedes to the acre.

Carrots are this year worth more than 3l. a load in this neighbourhood: 2l. is their general price. They are undoubtedly an excellent food for fatting sheep, particularly when used with bean-meal. I am therefore so satisfied with the early horn-carrots that I shall grow them more extensively next year.

I should add, that a few drills of Altringhams were sown, which broke in the harvesting, and did not produce so much by 7 lbs. a perch.—Believe me, yours truly,

DUCIE.

Ampley, Dec. 4.

(From the Journal of the Royal Agricultural Society.)

SHEEP-FARMING UPON THIRDS IN SOUTH AFRICA.—The following note is taken from a recent Cape paper. We have several times been asked if the practice existed there (as it does extensively in New South Wales) of being a **SLEEPING** partner in a wool-farm. This paragraph answers the question satisfactorily:—

"One-third of the profits of a capital of 1,000l. laid out in furnishing 1,000 sheep, as a sleeping partner in a sheep-farm:—

1st year	£ 5 5 0
2nd do	25 0 0
3rd do	105 0 0
4th do	140 0 0
5th do	310 0 0
6th do	560 0 0

Total amount of interest during six years. £1,145 5 0

At the end of six years the original amount, viz., 1,000l. to be withdrawn from the flock; and the remainder of the flock—consisting of 4,000 sheep—to be equally divided between the partners. This statement shows (as near as it can be brought) what will be the thirds of the profits during six years—supposing the individual, who furnishes the 1,000l., has no trouble, and provides no land; whilst the acting partner lives on the farm, purchases the land, and attends to the management of the flocks. The same sum, laid out in the 3½ per cents., would give, at the end of six years, not more than 210l., or 35l. per annum, leaving a balance, in favour of sheep-farming, of 935l. 5s.; besides having a stock of nearly 2,000 sheep to commence farming on one's own account, with the original capital, 1,000l. withdrawn."—Extract from Capt. Boy's Letter.

THE CORN LAWS.

TO THE EDITOR OF THE BRIGHTON GAZETTE AND LEWES OBSERVER.

SIR,—Parliament being about to meet for the dispatch of business, and Mr. Villiers standing pledged at the commencement of the Session to bring forward again the subject of the Corn Laws, I beg to send you the accompanying communication on that subject. During the recess, the manufacturing and commercial interest have been incessantly occupied in endeavouring, by the means of itinerant orators hired for that purpose, to raise an outcry against the agriculturist; first, by asserting that the landlords as legislators have placed heavy taxation on all classes of the community but themselves, who, these orators state, are but slightly affected by the burden; secondly, these same orators, during their perambulation through the kingdom, have most perseveringly inculcated the false doctrine, that none but the landowners will be prejudiced by the repeal of the Corn Laws.

In answer to the first assertion, let us take the county of Sussex as the touchstone. This county, with the exception of Brighton, Hastings, and Worthing, must be deemed entirely agricultural. It contains a population as expressed in Table I; the superficies are 625,000 acres of cultivated land, the uncultivated 311,300; total 936,300 statute acres, the rental of which, including the tithes, at 19s. 7d. per acre for the cultivated portion, gives £611,980 as the annual value. This same land is subject to the annual charge for land-tax, £60,047; poor-rates, £179,200; highway, £25,053; county, £15,963; and church-rates, £9,329; total, £289,592. The charge for the Rural Police being not yet arrived at maturity is omitted; it may, perhaps, be estimated after a time at about 25,000 per annum; but leaving this out of the calculation, the landlord's rental is absorbed once in every three years and a few months. This is a rather awkward proof of partial taxation. With regard to the statement that none but the landlords will be prejudiced by a repeal of the Corn Laws, may I beg those who may be inclined to this opinion to peruse impartially the enumeration of the retail tradesmen of the county of Sussex? Much stress has been laid by these hired itinerant orators upon the immense capital employed by the cotton manufacturers. Assertions at all times are not facts. Perhaps the comparative statement of capital employed by the agriculturists of Sussex and the whole of the cotton manufacturers of Great Britain may create some surprise, but I believe it will bear a strict examination as to the truth. The 625,000 acres of cultivated land, upon an average, will require £8 per acre for the cultivation by the tenant; this will give a total of £5,200,000; the rental of the freehold being £611,980, at 30 years' purchase, would require a capital from the purchasers of £18,359,400; total capital employed by the agriculturists of Sussex, £23,559,400. The cotton mills and factories in Great Britain in 1835 were 1304. Admitting each mill and factory to employ a capital of £18,000, the total of 1304 would, in that case, nearly approximate to the capital employed by the agricultural body in Sussex. To the advocates for free trade, I present the amount of manual labour lost to the country by the importation of agricultural produce in the last year only. If, Mr. Editor, your space will admit the insertion of this communication, you will oblige your most obedient servant,

MICHAEL IRISH.

London, 14th January, 1841.

Population of Sussex, 1831, Brighton, Hastings, and Worthing excluded.—Males 20 years of age.—Male servants under 20 years of age, and female servants.

<i>Agricultural.</i>		<i>Manufacturers.</i>					
Proprietors of land and tithes.....	3,180	As masters or workmen.....	69	Wholesale merchants, bankers, &c., &c.	1,770	Retail tradesmen of every description, and their workmen	11,244
Occupiers, employing labourers ..	3,160			Labourers, fishermen, navigators, &c., &c.	4,277		
Ditto, not employing labourers ..	1,330						
Labourers.....	26,125						
Totals	33,795		69		6,056		11,244
							10,959

Enumeration of the 11,244 Retail Tradesmen and their Workmen.

<i>Traders in Articles wholly the Produce of Sussex.</i>	<i>Traders in Articles partly the Produce of Sussex, and partly of other counties and countries.</i>	<i>Traders in Articles wholly the Produce of other counties and countries.</i>	
Basket maker, 52	Auctioneer or appraiser, 48	Blacksmith, 918	Total, 1st class..... 3,710
Brewer, 110	Block-maker, 1	Bookbinder, 19	" 2d class..... 5,395
Baker and pastry-cook, 313	Boot & shoe-maker, 1,556	Bookseller, 15	" 3d class..... 2,139
Brick-maker, 256	Bricklayer, 931	Brazier, 22	
Broom-maker, 68	Broker, 16	Breeches-maker, 2	Total retail traders & } 11,244
Butcher, 455	Builder, 49	Caulker, 1	their workmen..... }
Chimney-sweep, 30	Cattle-dealer, 3	Carver & gilder, 8	
Corn-dealer, 41	Carpenter, 1,518	Cheesemonger, 16	
Fish-dealer, 49	Carrier, 227	Chemist & druggist, 42	
Fellmonger, 45	Coach proprietor or driver, 105	Clock & watchmaker, 88	
Flax-dresser, 1	Cooper, 97	silversmith & jeweller, 18	
Flour-dealer, 85	Currier, 75	Clothier or salesman, 56	" Which of these tradesmen can say, if the landlord or farmer is injured, I shall go free from damage?"
Farrier, 219	Earthenware & china-dealer, 28	Casement-maker, 61	
Green-grocer & gardener, 16	Fruiterer, 21	Copper-plate printer, 2	" From what source does the tradesman get the means to purchase the goods required from the manufacturers and commercial,—class 2 and 3?"
Hoop-shaver, 19	Glover, 36	Cork-cutter, 12	
Lath-render, 92	Horse-dealer & hackney-man, 71	Cutler, 11	
Maltster, 38	Huckster, 31	Dyer, 2	
Mealman, 536	Hair-dresser, 81	Father-dresser, 2	
Milkman, 1	Lime-burner, 60	Saddler, &c., 92	
Mop-maker, 18	Land-jobber, 4	Slater, 7	
Poulterer, 654	Mason, 134	Spirit-dealer & wine-merchant, 15	
Publican & beer-seller, 3	Millwright, 38	Stay-maker, 1	
Rake-maker, 6	Plasterer, 30	Tailor, 638	
Straw-platter, 8	Patten-maker, 1	Tea-dealer, 46	
Scavenger, 101	Sawyer, 72	Tinman, 45	
Tanner, 9	Shipwright, 62	Truss-maker, 2	
Wharfinger, 14	Tallow-chandler, 36		
Whip-stick-dresser, 1	Turner, 62		
Wool-comber, 1	Timber-dealer, 2		
Wool-sorter, 457			
Wool-dealer, 0			
Wheelwright, 457			
Yeast-dealer, 0			
Total, 1st class..	3710	Total, 2d class..	5395
		Total, 3d class..	2139

The mercenary portion of the manufacturers and commercial men complain their trade is shackled, inasmuch that if they could exchange the goods for corn, it would be the cause of a great increase of trade. This is contrary to the evidence of the late Mr. Rothschild, who stated in evidence before a committee of Parliament, that the only goods you could exchange for corn was gold. One would think the goods we take from foreigners, and which could be raised in this country amount to a pretty considerable sum, as the following papers will shew. These are copied from the Customs' return to Parliament. Which of the tradesmen above or their workmen but would have been benefitted, if £18,238,980 of agricultural produce had been raised in the kingdom at a charge for manual labour of £8,570,370?

TABLE 3.—Grain and other produce of the soil Imported and Entered for Home Consumption for the year 1839, ending for Grain, the 5th October, for other Produce, the 5th January.

SPECIES.	Imperial quarters imported & entered for home consump- tion.	Average price per quarter.	Total amount.	Calcu- lated pro- duce per acre.	Quantity of acres re- quired for the pro- duce.	Quarters of seed, corn, &c., re- quired.	Quantity per acre sown.	Quantity of acres required for seed corn.	Total quarters.	Total quantity of acres.
GRAIN.										
Wheat and flour....	2,583,198	£ 3 10 0	9,041,193	3 qrs.	861,066	322,899	3 bush	107,633	2,906,097	968,699
Barley	823,243	1 18 0	1,564,161	4½	182,942	114,338	5	25,408	937,561	208,350
Oats	671,336	1 5 0	839,195	5	134,267	100,700	6	20,140	772,036	154,407
Rye	5,452	2 10 0	13,680	3	1,817	908	4	302	6,360	2,119
Peas	172,934	2 0 0	345,868	3	57,644	36,027	5	12,009	208,961	69,653
Beans	182,539	2 0 0	365,078	3	60,846	38,072	5	12,680	220,611	73,536
Beer bigs, &c.	12,925	1 18 0	24,557	4½	2,872	1,795	5	398	14,720	3,270
Total	4,451,627		12,193,732		1,301,454	614,719			5,066,346	1,480,034
SEEDS.										
Clover	23,970	14 0 0	335,580	½ qr.	47,940	1,872	2½ gals.	3,744	25,842	51,634
Lin. and flax seed..	399,777	2 0 0	799,554	4	99,940	24,444	2 bush.	6,111	424,221	106,055
Rape	89,244	1 10 0	133,866	4	24,311	6,077	2	1,519	95,321	25,830
Total	535,992		1,269,000		192,195	32,393		11,374	545,384	133,569
PROVISIONS.										
Butter	252,149 cwt	7 14 cwt	1,437,098	(157,419 cows) 2 acres each cow.						314,838
Cheese	115,121 cwt	2 13 cwt	305,070							
Eggs	84,000,000	20 for 1s	210,000							
Hams and pork	11,000 cwt.	2 16 cwt	30,800							
Total			1,982,968							314,838
MISCELLANEOUS.										
Tallow	1,106,177 cwt	2 12 0	3,032,060	(stone of 8lb.) (per dozen.) ½ ton per acre						220,268
Hides	4,462,682 st.	0 2 6	557,835							
Skins	275,388 doz	1 0 0	275,388							
Hemp	81,237 ton	40 0 0	3,249,480							
Flax	38,897 ton	30 0 0	1,555,888	(load 45 cwt.) ½ ton per acre.						20,853
Timber	881,155 ld.	5 0 0	4,405,775							
Bark	1,728 ld.	7 0 0	31,104							
Tobacco	23,356,246 lbs	0 0 9	875,854							
Wool	56,734,625 lbs	0 1 4	4,255,596	14,183,656 sheep, average 4lb. to each sheep, and three sheep to an acre.						4,727,885
Total			18,238,980							4,969,006

SUMMARY.

Amount paid for Agricultural Produce Imported and entered for Home Consumption for the year 1839.

Grain	12,193,732
Seeds	1,269,000
Provisions	1,982,968
Miscellaneous produce.....	18,238,980
Total amount.....	33,684,680

Estimated number of Acres required to raise the Produce Imported and entered for Home Consumption for the year 1839.

Grain of all species	1,480,034
Seeds	133,569
Provision carried out.....	314,838
Miscellaneous carried out.....	4,969,006
Provision & miscellaneous not carried out estimated at	70,000

Total acres 7,017,467

TABLE H.—Uncultivated Land in the Imperial Kingdom.

England	9,133,060 acres
Wales	1,818,174
Scotland	13,900,550
Ireland	5,796,135

Total 30,148,519 acres

TABLE 3.—Estimated number of Agricultural Labourers that would be required to cultivate 7,017,467 acres of land in tillage, with a calculation of the amount of wages for a year.

70,174 parcels of land, containing 100 acres each parcel; labourers, 1 head carter, at 12s. per week, 1 under carter at 6s. per week, and 1 odd man at 10s. per week, 1 boy at 3s. per week, with one shepherd at 15s. per week, for every 600 acres, 1 dairy woman to every 8 cows, at 7s. per week.	Reaping—968,699 acres, wheat, 12s.	£ 586,219	Threshing—2,906,097 qrs. wheat, 3s. 4d.	£ 484,340
(h) Total persons....	" 268,350 " barley, 5s.	52,087	" 937,561 " barley, 2s. 6d.	117,195
Wages as above for 1 year.....	" 154,407 " oats, 4s.	30,881	" 772,036 " oats, 1s. 6d.	57,002
	" 2,119 " rye, 10s.	1,050	" 6,300 " rye, 3s.	954
	" 69,653 " peas, 6s. 8d.	23,217	" 208,961 " peas, 3s.	31,344
	" 73,636 " beans, 6s. 8d.	24,512	" 220,611 " beans, 3s.	33,001
	" 3,270 " beer or bigs, 5s.	817	" 14,720 " beer or bigs, 3s.	1,815
	Total.....	£718,792	Total.....	£726,650

SUMMARY.—Weekly wages £7,124,928 | Reaping £718,792 | Threshing £726,650 | Total wages £8,570,370

ON THE EPIDEMIC, AND THE INFLUENZA AMONGST SHEEP.

SIR,—At the same period when the epidemic pervaded the cattle of this district, it gradually developed itself amongst the flocks of sheep, to the serious cost and disappointment of the farmer. It was a singular circumstance, that at the time when it was raging as an epidemic down in Cheshire and up in Derbyshire, bordering on the northern part of Staffordshire, we had not a solitary case in the neighbourhood, and had a sanitary *cordon* been drawn around us, it would not have been more effectually shut out; nor was it till some of those inexplicable mysterious and inscrutable changes occurred in our atmosphere as autumn approached, (and which set at defiance all the resources of science for detection and a satisfactory explanation,) that the disease assumed its epidemic character. These atmospheric influences operate powerfully upon the animal economy, tending to change the healthy action of the system, and destroy its delicately and wonderfully balanced operations, and thus predispose the body to take on disease.

The symptoms of the disease in sheep correspond exactly with those in the cow and pigs, but they suffered more severely in their feet than the pigs, and equally as much as the cattle, the hoofs coming off more extensively than in either of the other two. The disease pursued equally the same course as in cattle, commencing in their feet. In one large flock, the influenza broke out amongst them, accompanied with an affection of the feet similar to what occurred in the epidemic, but they had none of the other characteristic symptoms of the latter disease; we therefore considered it as arising out of having travelled 3 or 400 miles into this district, from its occurring in the feet immediately afterwards; but the influenza did not occur amongst them till some weeks after their arrival. Whilst this flock of poor sheep were labouring under the influenza, another flock of fattened sheep, resident upon the same domain but kept quite distinct, commenced with all the characterized symptoms of the epidemic.

The influenza evinced itself at first by a hoarse or cough, heaviness and running of the eyes and nose; as the disease advanced, they lost their appetite, retired apart from the flock, constantly lying down, the bowels became constipated, and the breathing quick, and if not timely relieved by proper remedial means they soon died. I have understood vast ravages were committed amongst the Lincolnshire flocks, accompanied with great fatality; it must, I think, have been this disease, and which probably was treated upon the same principles as the epidemic of cattle; if so, it would be sure to be attended with fatal consequences. On a post-mortem examination, you found general inflammation throughout all the viscera of the chest and abdomen, but more particularly upon the lungs and air passages; the heart and pericardium were in some cases much inflamed, accompanied with an effusion of bloody serum into the heart bag; in others, effusion of water, or matter, occurred in the cavities of the chest; in some there were extensive adhesions of the lungs to the pleura lining the ribs; in other cases the disease terminated in a gangrenous state of the lungs, the liver being also much implicated in the general mass of disease, and all the mucous membranes of the bowels were much inflamed. On taking the skin off the

animal, there were erysipelatous patches and lines of inflammation running up the limbs, along the sides and under the belly, accompanied with ædema or swelling, presenting just the appearance of what we find in calves that are struck. The caul, in some, was like a mass, or layer of black coagulated blood, diffused over the surface of the intestines. In a few cases, the heart was much softened, and very flabby, readily accounting for the sudden manner in which some died. It was no unusual thing for the shepherd to leave his flock in the morning free, *to appearance* from any immediate danger, and to find, on his return in the afternoon two, or three dead; or perhaps he might be standing amongst his flock when first turned out in the morning to range the pastures, and suddenly his attention would be arrested by one or two of the sheep reeling and staggering along a few paces, and dropping down dead, no doubt from an affection of the heart.

TREATMENT.—At first they were treated upon the same principle as the cattle and pigs, but the salts proved very injurious, and too cold, occasioning in some instances a metastasis, or change of attack on the part of the disease to the heart, followed by immediate death; or else, if purging took place, they sunk away rapidly; we were therefore compelled to modify the general treatment, which then answered very well, both as regards the epidemic as well as the influenza. Instead of purging salts, we administered to each sheep from half a drachm to a drachm of saltpetre, dissolved in a wine-glass of water, daily, to which was added a wine-glass of cold-drawn linseed oil; the mouth and feet were treated the same as in cattle. In cases of influenza, where there is quickness of breathing, half a pint of blood should be abstracted, and repeated the next day if necessary, either by bleeding at the nostrils, or under the eyes, or else at the jugular vein. Should the linseed oil not be adequate to remove the constipation of the bowels, ten grains of rhubarb might be added to the other medicine, and repeated every other day, or according to circumstances; but purging must be avoided, as it either, when once set in, becomes uncontrollable, or else the animal rapidly sinks under the debilitating effects of it.

The most simple way of regulating the doses of saltpetre is, by putting into a quart bottle of water one ounce of saltpetre for half-drachm doses, or else two ounces of it for drachm doses, dividing the quart mixture into sixteen doses. The above treatment will be found safe and effectual in the epidemic, and as successful as any in influenza; but the latter disease is of a more complicated and dangerous nature, and there will be cases which will baffle all treatment. Where, in influenza, there is a discharge like glue sticking to the nostrils, and very fetid, twenty drops of sweet spirits of nitre should be added to the daily dose of the mixture; if diarrhoea occurs, it must be stopped by giving wheat-flour gruel, thickened with starch, to which may be added chalk and a little cinnamon. The sheep should be penned at night, or put under airy sheds, so as to be kept dry and comfortable, with plenty of fresh dry straw under them; they should be foddered with good choice hay, and those that will not eat must be kept upon oatmeal gruel horned into them. When fine, they must be turned out, but not till the frost or dew is off the ground, and the sun well up, taking care to pen them up early in the

afternoon, as soon as the sun is sinking down in the west.

I forgot to state in my paper on cattle, that they should be dieted with nice choice hay, or, according to the season of the year, grass or young clover, cut turnips, and bran mashies; but when their mouths are so bad as to prevent their feeding, they must be nursed with oatmeal gruel and linseed tea, giving them oatmeal to drink in their water.

In conclusion, allow me to return you thanks for your kind insertion of my papers in your valuable journal. I trust they may be found of service to the parties they are intended for; at any rate, I have had the pleasing task of attempting to do that duty which our profession owes to the agricultural community in their hour of need, and at a time when the interests of the agriculturist and the veterinary surgeon are annually becoming more blended.

I remain, dear Sir, yours, most respectfully,
THOS. MAYER, SEN., V. S.
Newcastle-under-Lyne, Jan. 28, 1841.

P.S. I observe two errors committed by you in my last paper, viz.,—my having professional engagements should read my *heavy* professional, &c., and instead of the living membranes of the mouth, &c., it should have been *lining* membranes, &c.

VALUE OF CHEMISTRY TO AGRICULTURE.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—Fully concurring with you in the remarks contained in the leading article of your valuable journal of Dec. 14th, on the utility of the connexion of science with agriculture, I take the liberty of sending for the perusal of your readers an extract from a very interesting pamphlet, written by a Mr. Durden, on "the Necessity of the Study of Chemistry as a branch of General Education, and published by Baynes, 28, Paternoster-row, at the price of one shilling only. After a few observations on the necessity of the agriculturist being acquainted with the principles of chemistry, the author goes on to say—"To give an instance of the great utility of the application of chemistry to agriculture, and consequently of its being made a branch of the education of those destined to agricultural pursuits, it may be mentioned, that it has been proved by well directed experiments, that the chemical constitution of wheat, for instance, is materially altered by the nature of the manure applied to the land in which it is sown; in fact, most astonishingly so. Now the principal constituents of wheat-flour, are starch and gluten. The manufacturer of starch would prefer a sample of wheat containing the largest amount of starch; the manufacturer of vermicelli would prefer the sample containing the largest amount of gluten. Now supposing a farmer to have two good customers for his wheat, the one a manufacturer of starch, the other of vermicelli, he would of course be desirous of accommodating both. Supposing also, for the sake of illustration, he has but one kind of seed to sow, and all his land is of the same quality, what would chemistry, in such an emergency, teach him to do? To divide his land into two parts, sow the same seed in each, but apply different manure to each division. Experiment has proved that one portion of the land shall produce wheat containing a larger proportion of starch than was contained in the seed sown, and consequently better fitted for the purpose of the starch-manufacturer: whilst the other portion of the land shall produce wheat containing a larger amount of gluten than existed in the sample

sown, and therefore better adapted for the use of the vermicelli-maker; and thus with the aid of chemistry, the farmer would be enabled to please both his customers, though possessing even but one field, and one kind of wheat for seed, and though the wants of each customer were directly the opposite of the other."

I would observe that the sample of wheat which contains the most gluten will produce the most nutritious bread, gluten being the nutritive principle of wheaten flour.

Again—"Lavoisier, the French chemist, cultivated 240 acres of land in La Vendée on chemical principles, in order to set a good example to the farmers; and his mode of culture was attended with so much success that he obtained a third more of crop than was procured by the usual method, and in nine years his annual produce was doubled. Agriculture is indeed even now in its infancy; the general application of chemistry to agriculture would produce incalculable benefits, and would, no doubt, enable us from our own soil to produce food enough for fifty millions, instead of being obliged to import from foreign countries to make up the quantity requisite for the supply of our present population of twenty-six millions."

Recommending to your readers a speedy perusal of this little work,

I am, Sir, yours sincerely,
A FRIEND TO THE IMPROVEMENT
OF AGRICULTURE.

Dec. 24th.

VERYAN FARMERS' CLUB.—On the 11th Jan. the anniversary of this club was celebrated by a ploughing match, which was very numerously attended. In the afternoon, the members and their friends dined together; and in the evening a lecture was delivered by Mr. W. F. Karkeek, of Truro, on the horse, his origin, breed, education, and man's obligations towards him. The lecturer, after a short introduction, entered into very interesting details connected with the earliest history of the horse, proving that it existed in this country with the elephant, rhinoceros, and also the megatherion mastador, and other extinct animals. He next spoke of the influence of breeding in various ways, with the mischief arising from inattention to this particular; and then noticed feeding, the changes caused by heat, soil, and variableness of climate, adducing as a proof the difference of size, symmetry, and courage of the horse in various parts of the globe. After a great deal of other valuable matter, the lecturer gave his opinion on the best method of breeding either hacks, hunters, or working horses, throwing out many very useful and practical hints on the subject, and also on the time of taking in hand colts, the manner of treatment, and the food and work necessary for them during their tender years. Towards the close the lecturer showed the obligation of man to this noble but ill-treated animal, and pleaded his cause with great feeling. We regret that we are unable to do justice to this admirable lecture, which reflected great credit on the head and heart of Mr. Karkeek, and was listened to with great attention. At the close a vote of thanks was unanimously passed to the lecturer, which was conveyed to him in a most pleasing manner by John Gwatkin, Esq., who acted as chairman on the occasion. The meeting then separated, highly pleased with the rich treat.

INDIGO MADE FROM SAWDUST.—The *Industriel Alsacien* states that the attention of the manufacturing community of Mulhausen has been lately occupied by the announcement of a discovery, which, if it can be practically realised, promises to be of immense importance: it is nothing less than the manufacture of indigo from oak sawdust, by means of certain chemical preparations. The experiments have been made in a village in the environs of Altkirch, and the first results are stated to be very conclusive. It is affirmed that a piece of this indigenous indigo, extracted from the sweepings of the timber-yard, has been analysed, and that it presented all the constituents of the real indigo.

ON DIFFERENT VARIETIES OF TURNIPS.

SIR,—Having last year drawn up for private circulation, among the friends and customers of a firm dealing in agricultural seeds, with which I am connected, a descriptive catalogue of most of the varieties and sub-varieties of turnips cultivated in this country and in Scotland, I beg leave to offer the same for your acceptance, with the expectation that it may not be altogether uninteresting to your readers, nor alien to the subject of the controversy at present so ably carried on in your columns. For some of the historical details and descriptions I am indebted to that excellent work "*The Agriculturist's Manual*," by Messrs. Peter Lawson and Son, seedsmen to the Highland Society of Scotland. In the cases of varieties of more recent introduction, I obtained, in the first instance, descriptions from the original introducers, which I afterwards verified by trial.

I have the honour to be, Sir,
Your very obedient and humble servant,

WILLIAM ELLIS, L.L.D.

Caistor, Lincolnshire, Jan. 30, 1841.

SWEDISH TURNIPS.

The Swedish turnip is harder than any of the common sorts, and in addition to its being more esteemed as food for horses throughout the turnip season, is better adapted for spring feeding generally. It however requires a somewhat deeper and superior class of soils, together with a greater allowance of manure. Swedish turnips are generally sown from about the middle to the end of May, and two to two-and-a-half pounds of seed per imperial acre are, under ordinary circumstances, considered sufficient. They possess an advantage over the others in being easily transplanted, so that the blanks in the rows, either of the Swedes, or other sorts (when they occur) are by that means easily filled up.

Skirving's New Improved Purple-Topped Swede.—Mr. William Skirving, of Walton nursery, near Liverpool, who has for many years directed his attention to the improvement of agricultural roots and plants, and for which he has obtained the medals of the Highland Society of Scotland and of the Liverpool Agricultural Society, introduced last season, for the first time, the above highly popular variety. From comparison with every known variety of turnips which Mr. Skirving has been at pains to collect from all quarters, both in this country and the continent, it has shown itself to possess all the good qualities of a turnip in a greater degree than any other sort. It gives a greater weight per acre of sound nutritive bulb, and from having a finer root impoverishes the soil less: it is also harder, and keeps longer than any other variety. The above is an abridgment of the description communicated to me by Mr. Skirving, accompanied with six very fine specimens, weighing from sixteen to eighteen pounds each. We met with a large demand for the seed, and in every instance that has come to our knowledge the produce gave the utmost satisfaction to the growers, and we are sorry that Mr. Skirving has been able this year to place but a very limited quantity of seed at our disposal. The leaves of Mr. Skirving's Swede appear to me to partake considerably of the character of those of the common turnips, being less smooth and more serrated at the edges, and deficient in that glaucous bloom which distinguishes the leaves of the genuine Swedish turnip, which leads me to suspect that he has at-

tained the size by hybridizing with some of the larger varieties of yellow turnips.

Ballantyne's New Improved Purple-Topped Swede.—This improved variety takes its name from its original introducer, Mr. Ballantyne, nursery and seedsman, Dalkeith. It is, for symmetry of shape, equality of size, and for the uniform deep purple colour of its top—unsurpassed by any other variety which has come under our notice. In point of size—although some single roots in our experimental ground attained a weight equal to the heaviest we raised from Mr. Skirving's seed, with precisely the same treatment—we understand, from some of our customers whom we supplied with it last year, that in ordinary field culture it comes short of Mr. Skirving's in that particular. It was however highly approved by all who grew it.

Scott's Prize Purple-Topped Swede.—The introducer of this approved variety, Mr. Scott, of Southend, near Tranent, in East Lothian, who, since the retirement of his late partner Mr. Cleghorn, carries on the business of the old established firm of Thomas Cleghorn and Co., nursery and seedsmen, of Edinburgh, is deservedly celebrated for his success as an improver and care as a grower of turnip seed. For this and other kinds of turnips he has obtained prizes from local agricultural societies, as well as from the Highland Society of Scotland. It is ox-heart shaped, purple above ground, and yellow fleshed, with a small top.

Laing's New Purple-Topped Swede, is a decidedly distinct variety. It has a leaf something like that of a lettuce. The leaves are so inserted in the top of the turnip as to give it much the appearance of that of a pine apple. It grows to a good size, keeps well, and bears a very high character among the agriculturists of Berwickshire and Northumberland, where it is extensively cultivated. It has not been introduced into this neighbourhood. We grow a portion of it in our experimental ground, the seed of which was sent us last year by Messrs. Peter Lawson and Son, of Edinburgh. The crop had a most beautiful appearance, when in full leaf, and was a very good one.

New Pink-Topped Swede, and new Early Pink-Topped Victoria Swede.—Messrs. Lawson sent us two parcels of seed named as above: the produce of both was good. The latter certainly grew faster than most of the other varieties of Swedes, and seems to merit its name of early.

Green-Topped Yellow Swede.—This variety, is of longer standing than the Purple-Topped, since the introduction of which, less attention has been bestowed by cultivators in procuring improved stocks of the Green-Topped Swede, which has on that account fallen somewhat in the estimation of growers; but, where the same care is taken in selecting the roots grown for seed, the green-topped may be considered as being equal in merit to the purple.

Scott's Prize Green-Topped Yellow Swede is an improved variety of the above. The Purple-Topped Swedes are at present more popular, as we before mentioned; but where, as is the case with Mr. Scott's, equal care has been bestowed on the selection of stocks, and in the subsequent management, the green is in no way inferior to the purple-topped variety.

Hillyard's Thorpe Island Swede.—This variety was introduced some years ago by Mr. Hillyard, with whose exertions in the cause of agricultural improvement every reader of your Journal is familiar, and has been cultivated by him ever since. Mr. Hillyard

had the kindness to send me a portion of the seed last year, which we grew with a number of other varieties in our experimental ground. It has the appearance of a true Swedish turnip, and closely resembles some which I saw two or three years ago, the produce of seed procured from the Botanic Garden at Upsal. It is said to be more nutritive, bulk for bulk, than some of the larger varieties, which may or may not be the case. Its dwarfish size, and the impossibility of raising any great weight of food per acre from it, must, notwithstanding its other merits, be a great obstacle to its making its way among the larger sorts which now invite the attention of cultivators.

Cos's New Imperial Swede.—This variety may be considered as intermediate in colour between the purple and green-topped sorts; its roots often attain a large size, but are rather irregular, and of a somewhat coarse-like quality.

White Swede.—The roots of this turnip are very irregularly shaped, with numberless fangs. They are white under the surface of the ground, and greenish above. We grew two varieties in our experimental ground, one of which was strongly recommended to us, and stated to be highly improved. Although it was sown rather late, very few of the plants bulbed at all, but ran to seed prematurely. The crop looked more like a bad crop of rape than of turnips. The produce of the other parcel of seed, procured from another quarter, although not so bad was still very inferior. It is impossible to say what improvement may do for even this kind, but at present we are acquainted with no variety of white Swede worthy of cultivation.

YELLOW AND WHITE TURNIPS.

Common turnips are divided into two important classes, viz., the white and yellow-rooted; the former comprehending those which are most tender and arrive soonest at maturity, and which are best fitted for using during the earlier part of the season; and the latter, with trifling exceptions, such as from their hardness and period of arriving at perfection, are intermediate between the white sorts and the Swedes, and, like the latter, require a somewhat superior soil and an additional allowance of manure. The period of sowing common turnips should be regulated according to the length of time that the variety to be grown requires to arrive at maturity; for when allowed to remain in the ground in what may be termed growing weather, or before winter sets in, after they attain to a full size, they become soft, spongy, and of inferior quality. A general rule, however, is, to commence with the yellow sorts about a fortnight after the Swedes, or about the beginning of June, and to follow with the white sorts from the middle till towards the end of that month.

YELLOW TURNIPS.

Altringham Yellow.—This turnip—although from its being rather below the medium size attained by yellow turnips in general, it is more particularly suited for garden culture—is also in good repute in some quarters as a field turnip. It is recommended for its fine globular shape, and the superior solidity of its flesh. It has a light greenish top, very small neck, and tap-root.

Aberdeenshire Sugar Yellow.—This is a very hardy turnip; it buries itself considerably in the ground; it is highly nutritious, and is one of the most approved of the varieties lately introduced by us into this neighbourhood.

Border Imperial Purple-Topped Yellow.—This variety was first introduced by Mr. R. Hogg,

nursery and seedsman, of Dunse, in Berwickshire. The following particulars respecting it are given by Mr. Hogg:—"This turnip possesses all the qualities of the Swedish, with the advantage of being a much freer grower. It succeeds well on every variety of turnip soil, produces a larger crop than the white globe, is a good feeder, and stands the winter better than any of the common yellows. It is in full perfection for using in February, and continues for as long a period as the Swedes, and should the latter fail, the Border Imperial being sown as late as the month of June, will yield a crop equal, if not superior, to what might have been expected from the Swedes, had they succeeded."

Green-Topped Bullock-Yellow.—This turnip attains a medium size. Its shape is globular, or somewhat flattened, with a very small tap-root; it is an old variety, and is held in deserved estimation.

Purple-Topped Bullock-Yellow.—This variety differs from the former, chiefly in the colour of the top; the size, shape, and quality of the roots being pretty nearly the same. This variety is also highly esteemed, and is considered by some to come nearest to the Swedes in hardness and solidity of texture.

Skirring's Improved Purple-Topped Bullock-Yellow.—This improved variety of the above obtained for its introducer—Mr. William Skirring, of Liverpool—the medal of the Highland Society of Scotland. It has been generally grown for a number of years by the first agriculturists in Lancashire and the north-western counties.

Green and Purple-Topped Yellow Scotch.—differ but little in any of their essential properties from green and purple-topped bullock-yellow. The roots are flatter and grow more in the ground.

Ox-Heart Yellow.—is an excellent turnip; although it comes early to maturity, and attains a considerable size, it is by no means deficient in hardness.

Yellow Globe.—This is a superior turnip, both for field and garden culture. Its roots are of medium size, globular, and always nearly under the surface of the ground, top greenish, leaves rather small and spreading.

Yellow Some.—This variety differs from the last in growing more out of the ground, and having a greener top; in other respects it is pretty similar.

Brown-Topped Tankard-Yellow.—Root bright yellow, with a purple or brownish top, of a somewhat irregular long or tankard shape. This variety is in great repute in Aberdeenshire, and is one of the most approved of those which we have lately introduced into this neighbourhood. A sub-variety, of not so very long a shape, is preferred by some growers. They are both excellent turnips.

Green-Topped Tankard-Yellow.—differs from the above chiefly in the colour of the top. Of this, there is also a sub-variety of a flatter shape.

Large Laurencekirk Yellow-Tankard.—introduced by Mr. Robert Scott, of Laurencekirk.—It resembles Dale's Hybrid in many particulars, like which it grows a good deal out of the ground, but is distinguished by its more oblong and more uniformly shaped roots. Like Dale's Hybrid it arrives early at maturity, but is generally considered as rather less hardy and, like it, also yields a bulky crop.

Dale's Hybrid.—This highly esteemed variety, which is a cross between the green-topped Swede and white globe, procured by repeated impregnations, was first raised and brought into notice by Mr. Robert Dale, an intelligent farmer, at Liberton Mains, near Edinburgh. Mr. Dale obtained a few ounces of the seed of a new hybrid variety from Berwickshire, but which is supposed to have found its way

thither from Aberdeenshire, from the stock of that indefatigable veteran improver of turnips, Mr. Gordon, of Orrok. Its most distinguishing characteristics are as follow:—foliage strong and luxuriant, roots of a large size, oblong shape, and of a lightish yellow colour, with light green top, having also a small neck and tap-root. The shape of the root however, although generally oblong, is rather apt to vary, being sometimes almost globular, but its more material characteristics, of large size and luxuriance of growth, are always the same. Compared with any other of the yellow field sorts, it is found to arrive sooner at maturity, and consequently may be sown at a later period of the season, while at the same time it is equally hardy, or at least has been found sufficiently so, to withstand the severest winters, which have occurred since its introduction.

Gordon's Yellow.—This very superior variety derives its name from Mr. Gordon, of Orrok, the father of turnip husbandry in Aberdeenshire. It is of a rather oblong shape, deep green colour on the top, which is generally very slightly tinged with red. It is very nearly allied to Dale's hybrid, being a cross between the Aberdeenshire bullock-yellow and the Swede. Sir F.A. Mackenzie, Bart., upon whose extreme accuracy as an experimentalist the utmost reliance may be placed, grew last season a considerable number of the most approved kinds of turnips, on his farm at Conan Mains, near Dingwall, in Ross-shire, with the view of selecting such as might be found most worthy of being kept in cultivation, as best suited to the soil and climate of Ross-shire. Sir Francis had the kindness to communicate the result of his experiments to me, which was, that of Swedes, Skirving's is decidedly the best, Gordon's yellow the best of the yellow-fleshed, and Scott's purple-topped hybrid and the old white globe, of the white-fleshed kinds, which coincided very nearly with the result of our own experiments, with a considerably larger number of kinds, we having found none superior, and but few equal, to them in their respective classes.

Hood's new large Yellow—is a very superior, large, globularly shaped, hardy turnip, remarkably perfect in symmetry, and has rather a lightish green top. It was introduced by Charles Hood, Esq., an eminent farmer at Inverbrora, Sutherlandshire, a gentleman who has devoted much attention to the cultivation and improvement of field turnips generally.

Jones' Yellow.—This variety originated in the neighbourhood of Stirling, where it is still cultivated to some extent.

Pollexfen Yellow.—This turnip derives its name from its introducer, Thomas Pollexfen, Esq., of Cair-ston, collector of Her Majesty's Customs, Orkney; a gentleman in high repute as an agriculturist. From his peculiar method of selecting and transplanting the bulbs, as well as of stacking and preserving the seed, the turnip seed of Mr. Pollexfen's growth has long been held in deserved estimation in Scotland, and has commanded the highest prices. The insular situation of Orkney, although in latitude 59° north, renders its climate less exposed to the extremes of heat and cold than in more continental situations farther south, the winters being mild and the frost so gentle, that the ice is seldom sufficiently strong to sustain the weight of a man. Its climate is on that account peculiarly favourable to the growth of turnips, and turnip seed grown in Orkney is accordingly highly prized by the Scotch farmers. The Pollexfen yellow is a green-topped turnip of a large size, rather flattish in shape, skin very smooth and thin; the flesh is firm and nutritious, being slightly

impregnated with the green-topped Swedish. It is adapted for winter and spring feeding, and is not liable to injury from frost. This turnip obtained the prize at the meeting of the Highland and Agricultural Society of Scotland held at Inverness the year before last, in the report of which it is highly commended.

WHITE TURNIPS.

White Globe.—Roots globular; skin smooth and perfectly white, neck and tap-root small. Although the above description embraces the principal characteristics of the white globe turnip, yet there is a considerable variety in those to which the name is applied, arising from the degree of care and attention bestowed by growers in selecting their seed-roots; and the shape is often not a little affected by the kind and state of the soil in which they are grown. Thus globes of any kind, and particularly the variety here mentioned, when grown on a very superior rich soil, may be said to be forced beyond their natural size, and thereby acquire somewhat of a monstrosity or overgrown appearance, losing in a great measure their natural symmetry of shape.

Pomeranian Globe.—This variety was introduced some years since from Pomerania, and may be considered the most perfect globe turnip in shape, as well as the most regular or uniform grower. Its skin is of a smooth white, and somewhat shining or transparent-like in appearance; leaves smoothish, of a dark green colour with whitish nerves.

Green Globe.—Roots of a fine globular shape, with a small neck and tap root; very white under, and green above the surface of the ground, of medium size, hardy and firm of texture, but scarcely so much so as the green round, than which it arrives at maturity rather earlier.

Stone Globe.—This is considered to be the hardiest of all the entire white globe turnips. It grows naturally deeper in the soil than the others, and has stronger and darker green foliage.

Red Globe.—Roots medium sized, globularly shaped and firm in texture. This is an old and in some districts a pretty extensively cultivated variety. It is medium early, and generally allowed to be particularly well suited for light soils and exposed elevated situations.

White Round.—is known in this neighbourhood by the name of Spring White. It is the largest of the round turnips, and at the same time the softest and most irregular in shape. It is generally hollowed towards the neck, and being so, is apt to be injured by retaining moisture which renders it unfit for using, except in the beginning of the winter season.

Green Round.—The round turnips are all of a peculiar flattish shape, rather hollowed towards their neck as also on their under side, and when grown to a large size, they become more or less of an irregular round or somewhat cornered shape. The green-topped variety possesses these characters in a less degree than the former, and is generally of a pretty regular round shape, flattened, but not much hollowed on the upper and under surface, the former of which is of a green colour and the latter white. It is also the hardiest of the round turnips.

Red Round.—This sort is inferior in size to the two former, but rather firmer in texture and more regular in shape. It should also be used in the early part of the season.

White Tankard.—The tankards, like the three preceding kinds, are unsuitable for winter feeding; not so much on account of their softness, as from their standing mostly above ground and being thereby much exposed to frost. They are generally earlier in arriving at maturity than the others. The white

tankard has its roots more than half out of the ground, oblong or tankard shape, but often bent or crooked. It is the largest of the tankards, but is also softer in texture than either red or green; its leaves are large and luxuriant: it is the earliest in maturing of any, but will not stand the frost.

Green Tankard.—Its roots are also more than half above ground; of a greenish colour, except on the under surface, which is white.

Red Tankard.—In size, shape, and texture, this variety may be considered as occupying an intermediate place between the white and green tankard. It is of a bright red clover on the upper surface, and white on the under.

Lawstown Hybrid.—This variety, which was raised by James Wright, Esq., of Lawstown, near Perth, may be considered as bearing the same relation to the Swede as Dale's hybrid. Its leaves are darkish green, rather small and smoothish, roots roundish or somewhat heart-shaped, being often tapered on the under side; white below and green above the surface of the ground. They are possessed of more solidity and firmness of texture than most of the white sorts.

Scott's Improved Purple-Topped Hybrid.—This variety, which obtained the prize of the Highland Society of Scotland at the meeting at Glasgow, in 1839, owes its origin to the exertions of Mr. Scott, of Southend, near Tranent. For a white-fleshed turnip it is remarkably solid, and attains a great size. This turnip was decidedly the best in point of size, symmetry of shape, uniformity of growth, and quality of flesh, of all the white-fleshed varieties grown by us last season in our experimental ground. It occupied the same pre-eminent place among those made trial of by Sir F. A. Mackenzie, Bart., whose care in experimenting and perspicuity in describing the results of his experiments, have been of great service to the cause of agriculture, and entitle him to a distinguished place among the most eminent promoters of agricultural improvements of the present time.

Lewisham Green-Topped Ox-heart.—This is an excellent variety, grown in some of the southern districts of England and in Scotland. It acquired this name from having been first introduced by Messrs. Willmott and Co. of Lewisham. In colour and shape, it very much resembles the Lawtown hybrid, but is somewhat softer in texture and has larger and lighter green coloured leaves.

Autumn, Stubble, or Six Weeks.—Roots much above ground, rather large, of an irregular globular shape, or in form between the white globe and white round, and rather soft. This sort arrives sooner at maturity than any of the others, the tankard turnips perhaps excepted; and from its natural softness of texture, should always be sown late, and used before the severe frosts set in. As descriptive of its earliness, it has received the abovenames, it being suited for sowing in early situations in autumn after the corn crop has been removed, and it is also valuable for making up blanks in turnip fields, where the first sowing may have partially failed.

NEW PATENT.—William Palmer, of Feltwell, Norfolk, blacksmith, for certain improvements in ploughs.—Rolls' Chapel Office, January 8, 1841.—These improvements in ploughs are designed to reduce the friction of draught; to enable the plough to accommodate itself to any required depth of cutting; and to afford a more certain and accurate means of directing its course. These objects are effected by dispensing with the sole or slade, and causing the hinder part of the plough to be supported by and run upon a wheel behind the breast, which wheel is mounted in adjustable bearings, so that by its position the share may be made

to cut into the earth to a greater or lesser depth, as circumstances or the nature of the ground may require. The draught of the plough is also capable of regulation by the adjustment of the drag-chain attached to a peculiar construction of "hake" at the head of the beam, and the coulter so connected to the beam that it may be readily set to any depth or angle, according to the required work and direction. The general construction of this plough does not differ materially from those already in use—that is to say, it consists of a beam, bracings, and frame; a breast attached to the frame with a share affixed thereto; handles for guiding, a coulter for directing, and a hake for attaching the drag-chain. The peculiar feature of novelty consists in a running wheel, about eighteen inches in diameter, being attached by a pin or axle to a saddle iron; from the upper part of which saddle iron a perpendicular rod extends, having a worm or screw cut upon it. A bridge affixed to the beam and to the handles has an aperture through which the pin passes, and the pin with the saddle iron and wheel, is held up by a screw nut on the top. The bracing is a plate of iron, about half an inch thick, having three arms, the upper two of which are securely fixed to the beam and to the handles by bolts, and the lower arm has a long slot in it, through which the axle of the wheel passes. The situation of the breast or mould board of the plough is immediately before the wheel, and the frame behind it, and the wheel by moving in the furrow keeps the under part of the breast and of the frame from coming in contact with the ground, and therefore a sole or slade, as in other ploughs, is unnecessary. According to the depth to which the share is wished to cut into the ground, the running wheel is raised or lowered by turning the screw nut on the top of the pin. The hake at the end of the beam is formed by a frame which carries two perpendicular pins, the one being plain, the other having a screw cut upon it. A socket piece has an eye to which the draught chain is attached; through this socket piece both the pins pass, and it slides freely on the foremost plain pin, while the screwed pin holds it at any required point. In order, therefore, to raise or depress the drag-chain, the screw pin must be turned round, which regulates the position of the draught. The coulter has a wedge-shaped cutting blade at the lower part, but is cylindrical above, passing through a cylindrical socket on the side of the beam. This socket forms the end of a bolt passed through the beam and through two disc plates, with a nut and screw at its reverse end, which being turned draws the coulter and the discs tight against the beam. This mode of fixing the coulter allows it to be placed at any desired depth; the inner disc plate is loose upon the pin, and can be turned round; it is made thicker on one side than on the other, that is, its sides are not parallel but of a wedge form. Hence, by turning the inner disc plate round, the direction of the cutting part of the coulter may be varied so as to suit the angle of direction required.

HOW TO DESTROY RATS AND MICE IN CORN STACKS.

The following sure method was adopted by the late Mr. John Gibson, of Millbeck Hall, Keswick, and is still continued by his son Mr. Joseph Gibson, of the same place, with never-failing success. It is accomplished by simply driving in a few hedge-stakes, at about four feet distance, round the stack intended to be housed, and having a woollen or linen web, of about six 4ths or seven 4ths wide, upon the stakes, so as to be perfectly close at the bottom, of which particular care must be taken, in order that none of the vermin may creep under the folds. It is certain that none will attempt to climb over the top, and it matters not whether there are fifty or five hundred within the enclosed area. They will all be quite safe. An active lad and a dog may easily destroy any ordinary number, and he must be a clumsy fellow if he lose one out of a hundred. A few neighbours, by subscribing about 2s. 6d. each, might get an article at 10d. a yard that would serve them all for twenty years. If the above simple method were generally adopted for a short time, those destructive enemies to the stack-yard would soon be considerably reduced.

ON TRAIN OIL AS MANURE.

SIR,—Little did I think, when speaking at the market-table of the great advantage in using oil for the growth of turnips, my name would have appeared in your valuable paper. As it is so, I will give you my experiment with oil. The soil is a poor gravel,—the farm in the parish of Edwinastow, and inclosed off the old Forest, near to Thorseby Park, the seat of Earl Manvers, who, I am happy to say, I farm under.

My attention was drawn to the use of oil, in consequence of the serious expence (from 3*l*. to 4*l*. per acre) I was obliged to go to in bones and rape dust, for I never use yard manure for turnips, as the soil is so poor. I cannot get wheat without manure; I therefore save it all for wheat. My first trial was in 1839, on 2 acres, in a 9-acre field, and nearly in the middle of it. I give you the cost of 1 acre—

	£	s.	d.
5 strike of half-inch bones, the dust in, (2 <i>s</i> . 7½ <i>d</i> . per strike,) per acre.	0	13	1½
3 gallons of train-oil, at 2 <i>s</i> . 6 <i>d</i> . per gallon	0	7	6
10 strikes of coal ashes	0	0	0
	1	0	7½

Remainder of the field as below.

16 strike of bones, as above, at 2 <i>s</i> . 7½ <i>d</i> . per strike	2	2	0
5 hundred of rape-dust, at 6 <i>s</i> . 9 <i>d</i> . per hundred	1	13	9

3 15 9
With Oil 1 0 7½

Balance in favour of oil 2 15 1½

The oil turnips were as good as the remainder of the field; and all as good as I could wish, for the land. The barley as good—and the clover is now as good. I beg to refer any of your readers to W. Simpson, Esq., 29, Saville Row, London, late agent to Earl Manvers, who saw the crop in all its stages.

My next trial in 1840, on 9 acres—

11 strike of half-inch bones, dust in, at 2 <i>s</i> . 6 <i>d</i> . per strike, per acre.	1	7	6
3 gallons of train-oil, at 2 <i>s</i> . 6 <i>d</i> . per gallon	0	7	6
	1	15	0

11 acres, dressed as below, is a trial against oil.

16 strike of bones, at 2 <i>s</i> . 6 <i>d</i> . per strike, per acre	1	17	6
5 hundred of rape-dust, at 6 <i>s</i> . 9 <i>d</i> . per hundred	1	13	9
16 strike of pigeon manure, at 1 <i>s</i> . 6 <i>d</i> . per strike	1	4	0

4 15 3
With oil. 1 15 0

Balance in favour of oil 3 0 3

I think the 9 acres with oil rather the best field, and they are decidedly the best turnips; for this experiment I beg to refer you to W. Clutton, Esq., Edwinastow, Ollerton, Notts, agent to Earl Manvers, who has seen the crop in all its stages, and to Mr. J. Hole, of Cauntton, Newark. The rape-dust I sow broadcast, on the surface; it is then drawn in its proper place by ridging; I then drill my bones on the ridges 22 inches apart—the turnips were white tops.

I do not like the ashes mixed with the oil; it makes it dirty and bad to drill; the 11 strike of bones carefully mixed will absorb the oil, so as to drill excellent. I let them lay about two days after mixing. I know your readers will say, how is barley grown after so light a dressing? I answer—with my feeding sheep I use oilcake, and with my store sheep malt coombs, and the straw in the yard is all consumed—with oilcake I take my seeds up for wheat.

I beg to apologize for the length of this letter.—I am, Sir, your obedient servant, W. SHARP.

Scarthing Moor, Feb. 3rd, 1841.

TO THE EDITOR OF THE MARK
LANE EXPRESS.

SIR,—I shall feel obliged if in your next you will correct a statement of mine, relative to a bet made by Mr. Esam, of Sutton-on-Kent. The *tops* were to be weighed, and the bottoms were to be cut off.

A very able and temperate rebuke—for such I consider it, and such I hope some of your correspondents will consider it—was in your last, administered by Mr. Jemmett to those who are in the habit of placing the theory and practice of farming in a position of regular antagonism; but who shall undertake to arbitrate, when *practice* is actually opposed to *practice*?

I know of no better course to recommend than this—that each practitioner shall give an exact and faithful exposition of his plans in your paper, with a minute and impartial statement of the results, and then a valuable and important end will be arrived at; sooner or later the truth will appear if men will see it.

I have been led to make these remarks, in consequence of reading the letter of Mr. John Wreford. I had thought that the question on which he remarks had been pretty generally settled in favour of the opposite plan to that which he recommends. Without going particularly into my reasons at this time—for the post is just leaving, and I must therefore be brief—I have no hesitation in saying that I am wholly in favour of taking drains down a declivity, but nevertheless I am very thankful that your correspondent has given, with so much propriety, his views and practice; as I was particularly anxious to hear what is the practice on the strong land in the county of Kent; I hope that other gentlemen in that county will follow the example of Mr. Wreford, and it is impossible that good should not arise out of it.

Before concluding, I would just remark, that I do not quite understand the principle which Mr. Wreford appears to have laid down for himself; his draining is not *deep draining*, nor can it possibly be called *shallow draining*. Without further information, I should be compelled to conclude, that he has been at a great expence, and has thrown away the *advantages* of both. It would serve to render his practice clearer, if he would be good enough to state the exact quality of his *soil* and *subsoil*, and the reason why he dug his drains so deep, and yet filled them so very near the top as *eight inches*. With drains so deep as his, I should have recommended, if it be of the right kind, that the subsoil should have been stirred to the depth of at least eight inches below the working soil. In great haste,

I am, yours truly,

Collingham, Jan. 20.

J. W. FST.

ON A PRINCIPLE OF FENCING, FORMED ACCORDING TO THE LAWS OF VEGETABLE PHYSIOLOGY.

At a recent meeting of the Botanical Society of London, the following account was given by Mr. Daniel Cooper, the curator, of a mode of forming a fence-work to plantations, &c., of a very economical and rustic kind, and which may be termed with all propriety a "Natural living Fence." We are induced to give a full abstract of the communication, (from the first part of the Society's Proceedings), as we think the suggestion might offer some points of interest to our country readers.

The natural living fence consists simply of planting for the purpose trees or shoots of the same species, or species of the same genus, or genera of the same natural family, and causing them to unite by means of the process of "*grafting by approach or inarching*," a process well understood by gardeners and horticulturists. The fact having been briefly stated, it is necessary, in the next place, to enter more fully into an explanation of the plan to be adopted. In the first instance it is requisite to cultivate a portion of land, for the purpose of rearing the shoots intended for forming the fence. Those which I had the opportunity of observing (on the estate of Sir Thomas Neaves, Dagpam Park, Essex, constructed by his gardener and planter Mr. Breeze), were formed of ash, but of course any other tree would similarly unite and answer the end required. The faster the tree grows, and produces new wood, the stronger and better the fence necessarily becomes. The shoots or small trees are run up (as termed by gardeners), and kept trimmed so as to produce stems as straight as possible. These are trained to the heights required, depending upon the intended height of the fence. As soon as they have acquired sufficient age they are carefully transplanted, a trench of two feet in width being previously made in the line of the intended fence, it being found necessary to surround the roots with earth of a richer nature than that usually met with, where fences are to be placed, such as the outskirts of woods, plantations, parks, &c. The trench having been made and prepared, the stems are then carefully removed; one set being planted at the required distance, a foot for instance from each other, those we may suppose to slope to the north; the other set, for example, are planted sloping towards the south, at the same distance from each other, so that when the shoots proceed from the ground, they are in contact by their internal part.

The several stems having been thus arranged, the next and most important step is that of causing them to unite; this of course is requisite in order to produce strength, and is accomplished by the process of *grafting by approach*, or, what is the same thing, that of *inarching*. For this purpose it is necessary to remove a small plate of bark at the proper season, on each stem where their inner portions are in contact; this having been carefully performed, approximate the two stems, so that the denuded portions of each shall exactly meet; tie the stems together at these places, and keep them for a short time from the action of the atmosphere by means of a piece of clay. In the course of a few weeks, if these precautions have been attended to, adhesion takes place, and the result is, that a natural living fence has been formed, having openings of a diamond shape, which may be made of course of any size that may be required; it being only requisite to place the stems in the earth at a greater or less distance from each other.

The adhesion takes place in the following manner according to the laws of vegetable physiology. The plates of bark being removed on each stem, and the stems approximated to each other at that part, it follows that as the fluids rise in the stems of exogenous (out-growing) trees, within the woody portion of the trunk and descend within the bark,—that the stems being closely tied to each other, and kept at their point of union from the action of the air, the *cambium* (proper or ela-

borate juice) exudes, forms new wood, and the stems unite by the natural process.

The advantages which Mr. Cooper considers this kind of fencing to possess over that in ordinary use, are the following:—

1st. That it is rustic, and has not the hard and stiff appearance of the fencing made by carpenters.

2d. That so long as the trees of which it is formed are alive, it never requires to be in any way repaired, as living wood resists the action of the weather. The young shoots, should any spring forth, are to be removed by the pruning knife.

3d. That it may be carried to any height without additional expense, by training or running up the stems to the required height.

4th. That it acquires strength and thickness by the deposition of new wood annually; so, that in the course of years, when the stems have acquired the greatest degree of thickness, and have obliterated the openings, in the first instance made, a complete solid living wall will be result.

5th. That owing to the well-known durability and power of resisting the action of the weather of the bark, and external portions of living trees, a fence made on this plan does not require to be covered with tar, or any other preparations, requiring much time, labour, expense, and annoyance in the operation.

6th. That the first expense is the last, and is much cheaper also, in the first instance, to the ordinary kind of fencing employed, not requiring an annual expenditure to keep it in order; living wood, as before observed, withstanding the effects of the weather to a much greater extent than dead wood.

7th. That a fence to orchards may be formed of fruit trees of the same genus, or in the same natural family; the lower portions or stems of which form the fence, (and may be carried, as before observed, to the requisite height), whilst the upper part may be allowed to send forth its shoots and bear fruit.

8th. That owing to the open nature of this kind of fence (which openings may be formed of any size), shrubs and other plants usually planted close up to fencework, for the purpose of concealing it, will receive a larger proportion of air and light, so necessary to the growth of vegetables, which cannot be the case with the ordinary method of enclosing parks, &c., with palings.

9th. That should one of the bars by any cause become dead or destroyed, the circulation is carried on by the continuous bar or stem; so that if a bar dies it still remains in its situation, although it does not increase in thickness as takes place in those around it; this dead bar may then be compared as to durability, to the fencing until the present time formed of dead wood.

From the well-known nature and structure of wood, I consider the application of the process of *grafting by approach*, or *inarching*, in the construction of fences of all descriptions, to be one of the leading improvements of late years made in the science of gardening; and as such should strongly recommend its adoption to those individuals possessing landed property, and also to the directors of railroads and other undertakings, where both man and cattle are intended to be kept off, and which might more effectually be accomplished by the judicious selection of stems armed with prickles, &c.

PHOSPHORESCENT PLANTS.—In looking over an old newspaper the other day, I met with the following curious account of luminous plants:—The most remarkable cases of phosphorescence among vegetables are to be found in those curious plants called *rhizomorphas*—plants which botanists seem pretty well agreed upon referring to fungi. They are found most commonly hanging down from the fissures in vaults and cellars, where they have a sub-cylindrical form, and when their luminous qualities are very feeble. But it is in the furthest recesses of coal-mines, at many hundred feet distance from the action of light or atmospheric air, and in places where humidity is almost unknown,

that their singular qualities are most remarkable. In such places they divide into multitudes of branches of the texture of gossamer, and of the most dazzling whiteness. With these they form a sort of natural drapery to the coal-mines; and by the intertexture of their amorphous branches create forms of the most grotesque appearance, which almost give truth to the wildest pictures of eastern fable, and which are all lighted up by their own internal fires. These statements referred, I believe, to the coal-mines of Germany. Can any of your correspondents point out similar instances in this country?—*Correspondent of the Gardener's Chronicle.*

DESTRUCTION OF SPARROWS.

We hear much of the necessity which more than ever exists for destroying sparrows; and have lately read, in several periodicals, lamentations over the devastation they cause to the crops of the farmer; and appeals to parish officers, beseeching them to grant their aid to effect an extermination of the marauders, by inciting the youths of their districts to catch them and bring their offending heads, to be paid for at so much per dozen.

We used to deem with Pope, that "whatever is, is right," and firmly believed that he who made the wheat and the sparrows, knew best how to portion production to consumption; and, *vice versa*, the consumers to the produce. We were accustomed to consider it just, that, out of the fulness of the farmers' barns, the birds which at one season devoured the grubs and caterpillars that would have destroyed his crops, merited their daily rations of grain from their garnered stores which they had assisted to save. We loved to reflect that all living—aye, even ungrateful men—were created to be happy, and liked to watch the wanton freaks and saucy peckings of these very calumniated birds, in that blessed mood which the sight of joy inspires.

In an evil hour for all this equanimity, we took to keeping fowls—more sparrows than chickens in the farm-yard, was the consequence; barley for twenty-four, instead of twelve little beaks, was required. That proverbial and rather agreeable boldness for which the sparrow has been always celebrated, was magnified and became insufferable insolence; coveys, flocks, flights of the neighbouring "chartered libertines," were invited by the resident *caves-droppers* to regale upon our purchased barley. "Five shillings a bushel was too much to give for food to pauper, rascally sparrows." What should we do to destroy them? They were not worth powder—traps they were too cunning to enter—cats were too well fed to seek for such "small deer." The nuisance must be abated; what must be done? Poison was suggested, and to poison we resorted. *Nux vomica* was purchased, a portion boiled, and a handful of wheat steeped in the fatal liquid. On the following morning it was scattered, and in half an hour the deadly effects were seen; in every direction lay the offending causes of our ire; cats grew corpulent upon the easily obtained supply, and our vengeance, after a few weeks slaughter, was appeased.

Having last year lost gallons of summer fruits, particularly currants, from the attacks of birds, we this summer scattered the poisoned wheat among the currant bushes; gave the cat her milk every day in a fresh spot near the laden trees, and rejoiced in the supposed success of our

scheme. But about the time when the currants and gooseberries began to turn colour, a new evil appeared; myriads of caterpillars, green and black-marked ugly things covered every leaf of almost every tree; whole bushes were stripped of their leaves in the course of a few hours, and the immatured fruit turned sour and withered upon the naked boughs.

Hand-picking was resorted to, lime, sulphur, tobacco, &c., were dusted ineffectually over the creatures; hot water was administered with a powerful syringe—every method was tried to subdue the plague—and in vain! There stood the ghastly trees on the 30th of August, bare as December!

The "poetical justice" of the thing is now clearly apparent to us. We destroyed the sparrows that had kept our garden free from caterpillars, and which sparrows had never eaten the fruit; while the soft-billed birds—chaffinches, white-throats, thrushes, &c.—that could not eat the poisoned corn, have despoiled the trees of their fruit, as they had done in past seasons. Too late we recollected that we read an account from Germany, two or three years ago, which stated that a whole district was laid waste by caterpillars after it had been cleared from sparrows, because they had taken too large a portion of the farmer's corn.

We are aware that our statement appears too strongly to urge the claims of ravenous sparrows to be permitted to live out their natural lives, and feast unharmed, upon the labour of man. And we are not quite satisfied that we are right to do so: for not only are they among the living creatures that were made to be taken and destroyed, but they undoubtedly consume a great portion of corn. It appears, then, that it is a matter for calculation and of speculation, for the farmer to decide, whether on his land the denizen sparrows should live or die. To the gardener we think them decidedly useful.—*Quarterly Journal of Agriculture.*

ON THE COMPARATIVE MERITS OF THE SUSSEX AND OTHER BREEDS OF CATTLE,

TESTED BY THE DEAD WEIGHTS OF THE ANIMALS EXHIBITED AT THE LATE SMITTFIELD SHOW.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—In your valuable agricultural paper of the 11th instant, I find you give an account of the dead weight and loose fat of some of the beasts shown in London in December last; and, as this may be considered the age of experiments and improvements in agriculture, I am induced to offer you an account made from that and other sources equally to be relied on, to enable breeders of beasts to see the comparative merits, power, and capability to fatten in the different breeds of stock of several counties in England. It is my intention, in extracting from your paper, to confine myself to those beasts where you have given the dead weights, and also the loose fat of each; and I cannot but regret that the whole of the weights are not returned to you in that way, as it would have enabled me to make a much more satisfactory account by taking the whole of the

beasts shown, than by excluding a single one. In this account you will perceive the breeder's name, bullock's (county to which it belongs, and) age, dead weight, loose fat, and also the *per centage of loose fat to the dead weight*, which must be considered part of the value of the animal:—

Breeder.	Durham.	Hereford.	Sussex.	Dead Weight.	Loose Fat.	Total Dead Weight.	Total Loose Fat.	Average per centage of Loose Fat.
Earl Spencer.....	Ox—4 yrs. 5 m.	.....	.....	300st. 6lb.	23st. 2	793st. 5	92st. 0	11½st.
Right Hon. C. Arbuthnot.	Ox—4 yrs. 1 m.	.....	.....	215	0 25	0	0	
Ditto.....	Ox—4 yrs. 3 m.	.....	.....	212	0 25	0	0	
Mr. Lowder.....	Steer—3½ yrs.	.....	.....	165	7 18	6	0	
Mr. W. F. Warristaw.	.....	.....	.....	170	0 16	0	0	
Mr. Jellico.....	.....	Ox—4 yrs. 7 m.	.....	186	0 17	0	0	
Duke of Bedford.....	.....	Ox—4 yrs. 3 m.	.....	220	2 21	4	1086	4
Ditto.....	.....	Ox—3 yrs. 11 m.	.....	172	2 22	0	124	4
Mr. W. L. Sutton.....	.....	Ox—4 yrs. 11 m.	.....	182	0 23	0	11½	
Ditto.....	.....	Ox—4 yrs.	.....	166	0 25	0		
Mr. Samuel Selmes.....	.....	.....	.....	218	0 35	5		
Ditto.....	.....	.....	.....	213	5 31	1		
Ditto.....	.....	.....	.....	196	0 34	0		
Ditto.....	.....	.....	.....	190	0 30	0	1376	3
Ditto.....	.....	.....	.....	198	0 37	0	241	6
Ditto.....	.....	.....	.....	187	0 35	0		17½
Ditto.....	.....	.....	.....	187	0 35	0		
Mr. Hammond.....	.....	.....	.....	174	6 38	7		
Mr. J. F. Potterton.....	.....	.....	.....	182	2 24	4	310	7
Sir F. Booth.....	.....	.....	.....	128	5 21	6	46	2
Mr. S. Selmes.....	.....	.....	.....	141	4 27	0	1	15 nearly
Mr. Christopher Thorpe.....	.....	.....	.....	124	21 1	265	48	18
	Heifer—4 yrs. 9 m.	Heifer—3 yrs. 9 m.	Cow—5 yrs.					

In examining the above account, it will be seen that the average per cent. of loose fat to the dead weight in the Durham and Hereford oxen is 11½lb.; Sussex, 17½; in the Durham and Hereford heifers, 15; and in the Sussex cows, 18. The Sussex oxen of Mr. Selmes' breed, and fattened by him, were all seen in yoke in September, 1839 (the period at which that gentleman shewed 100 beasts against 100 of Earl Spencer's), and continued to work up to November, 1839. That of Mr. Hammond's

worked up to January, 1840. The Sussex cows of Mr. Thorpe reared a calf in 1840. For very many years the Sussex oxen have been deemed ineligible at the shows in London, in consequence of their age when fattened, or perhaps their unworthiness; but if their dead weight is nearly equal to the average of *first-rate herds* shown there, and per centage of loose fat greater, surely there can be no just reason why this distinction should any longer continue; but, on the contrary, that they may be considered justly entitled to be placed in competition with oxen of other counties at the next show, and that the circumstance of the Sussex beasts having worked up to seven years old, and still retaining the property to fatten, may henceforth be placed to the credit, and not to the debit, of the breed.

I am, sir, your obedient servant,

East Sussex, Jan. 27.

A SUSSEX FARMER.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Whenever your correspondents deviate in their communications from the customary courtesy of gentlemen, they present a fatal obstacle to the dissemination of knowledge, and give a "heavy blow" to the public exchange of thought and opinion; for educated and scientific men will shrink from the arena of controversy when their contributions are met by vulgar sarcasm, or by broad inferences of the writer being influenced by ignorance or prejudice. I am induced, as an old subscriber, to address you upon this subject, thinking that a recent letter in your September number, from Mr. Dandy Sharwood, in reply to Mr. Smart's essay on "the plough," is deficient in courtesy, as the following I trust will exemplify:—"Sir,—In your Journal of the 29th June, appears an essay on the power and construction of ploughs, by one William Smart, of Rainham, a farmer," &c., &c.

I am not singular in disliking the general tone of the said letter; but will illustrate my ideas of the above extract by supposing the following dialogue to occur between two coal whippers, who meeting near Waterloo bridge, when preparation was making for that exhibition which ended so fatally, the one enquires—"Why, I say Bill, what's up to-day?" and the rejoinder is given, "why, they say, Dick, that one Sam Scott, a diver," &c., &c.

No exception can here be justly taken, because the scene of action, the persons engaged, and the language used in the description, are all in harmony; but when a gentleman from Suffolk is describing in the Farmer's Magazine a man of Kent, universally esteemed for his high character as a gentleman, then the use of the same language creates a discord, against the repetition of which I raise my feeble protest.

I have not the honour of Mr. Smart's acquaintance, yet few in Kent are ignorant of his successful practice as a grazier, farmer, and horticulturist, and of his readiness to extend to others that knowledge which has proved the basis of his own reputation; and as he is fully able to cope with Mr. Sherwood in defence of his "A, B, C, D, theorem" (which is the usual method of explanation), I shall not enter into the controversy, fearing to exemplify the maxim, "that fools rush in where wise men fear to tread,"—yet cannot

resist acknowledging the pleasure derived by reading in your last number the letter of "Cultor" on "ploughs and ploughing," who, possessing a thorough knowledge of his subject, has put "*hors de combat*" all the little host of utilitarians, who, because they possess an efficient instrument for their own locality, rather dogmatically assume that, but for "prejudice," it might be universally used. It has been wisely sung, that "a little knowledge is a dangerous thing," and the maxim is equally true when applied to agriculture.

I am, Sir, your obedient servant,
Ile of Sheppy, KENT, JUNIOR.
 Jan. 18th, 1841.

HARLESTON FARMERS' CLUB.

THIRD ANNUAL REPORT, 1840.

Whether much or little information be contained in the proceedings of a farmers' club, it is desirable annually to place that information, in a brief compass, in each member's hands,—not a mere register of the resolutions passed on each subject discussed, but containing also, as a guide to future improvement, some of the evidence and arguments by which those results were obtained. Such was the object of our first annual report, a precedent successfully followed by the numerous clubs since established, and such the motive, which, at the close of our third year, induces your committee to lay before you a digest of the minutes of each discussion which has taken place during the past season.

The first meeting, as usual, was occupied with the annual business of the club, viz. passing the report of the previous year, and electing officers for the ensuing.

At the second meeting, on the 25th February, a series of questions on "CUTTING TURNIPS FOR SHEEP," from Sir Charles Menteath, of Closeburn Hall, in Scotland, forwarded to our club through Mr. J. A. Ransome, were taken into consideration.

These questions had been received during the former year, and your committee regrets that other subjects, to which the club was previously engaged, prevented their being entertained at an earlier period; when, as far as our experience on the subject warranted, the information sought by Sir Charles might have been afforded him at the time he required it. That time having elapsed, it was yet thought undesirable that so interesting a subject should be erased from our notice book, particularly as, like Sir C. Menteath, we were requiring information on the matter, rather than in a condition to impart it.

The questions are as follow:—upon each of them a discussion arose and information was obtained from all those members present who had adopted the plan,—but, in estimating the value of that information, it must be remembered, that this is more of a sheep breeding than sheep grazing district, and therefore, as before observed, we were on this subject rather learners than teachers.

1. What is the best turnip cutter for sheep?

The Banbury cutter.

2. At what season of the winter or spring, do they begin to cut the turnips for sheep?

As soon as they begin to consume them.

3. Whether the turnips be taken up and pitted in different places of the turnip field ready to be

cut? and in what way are the turnips to be covered over to preserve them from the frost?

It is usual to draw deep furrows at regular intervals, in which to set turnips up carefully, with the tops and tails on, and to mould them up with the plough.

4. For how many sheep per day can a man and a stout lad cut turnips—can they supply three hundred in a day?

A man and a stout lad, with the Banbury machine, can cut turnips which have been previously cleaned, for from three to four hundred hoggetts in a day.

5. What are the dimensions of the wooden troughs in which the cut turnips are consumed?

The following troughs are recommended as being light and easily moved—a great advantage—as otherwise the land will not, in all probability, be so equally manured. Light deal troughs, ten feet long, six inches deep, and nine wide, set on strong cross pieces, with a hand rail on the top to move them by, and also to keep the sheep from jumping over.

6. Do the sheep receive any other food with the cut turnips; as oil-cake, salt, chopped hay or straw, linseed, oats, peas or beans; and the quantities of each variety, for each sheep per day?

Optional with the feeder, who is governed by the time at which he wishes to return the sheep; but feeding with cut hay only, is perhaps the most usual practice in this district; if oil-cake be used, a pound of it for each sheep per day is a liberal allowance, or if oats be used, a pint at least must be given.

7. Are the young sheep, that is unshorn sheep, made fat on cut turnips, and sold off to the butcher without being turned out to grass to finish off?

No, except when corn is also given them.

8. State all other advantages that arise from feeding sheep in this new way from cut turnips, as to making the food go further, distributing manure, treading the field, &c.—and to what extent is it practiced in your district?

The principal advantage is the economy of food. The manure, with great care in frequently moving the troughs and spreading the offal, may be as equally distributed:—it is not considered that the land usually fed with sheep in this district is benefited by treading.

9. Suppose any given number of sheep;—one lot to be put to turnips, folded in the old way, and the sheep to eat them off on the ground in the best way they can, and to have oil-cake, cut hay, and salt; another lot of the same age to be fed with cut turnips in troughs, with the same quantities of artificial food: how much per head would the latter be worth more than the former, after being kept the usual number of weeks?

The sheep being fed with cut turnips would be worth the most money, but our experience is not sufficient to state the exact difference.

In the same evening was introduced the question, of "What is the best cultivation for BARLEY?" but time did not serve for a full discussion of the subject, it was therefore adjourned to the

Third Meeting, on the 18th March.

It would be impossible to introduce here all the arguments and opinions that were advanced on this common but important part of Norfolk husbandry; a few only of the principal points may be alluded to. All present agreed, that it was highly desirable to plough the land intended for barley as early as possible, to plough once only after a crop

of roots, except under a few particular cases; such as feeding the turnips off with sheep on very light land, when some thought it a better practice to scale in the tathe, and then plough again, but deeper for the crop. Much discussion arose on the well-known circumstance of the farmers on the other side of the county always ploughing three times for this crop after turnips, whether the latter be fed off or not; it was difficult to reconcile this method of cultivation with that successfully practiced on some *apparently* similar soils in this district, and the only feasible way of accounting for such different plans prevailing at a distance of forty or fifty miles only, was the supposition, that although the upper soil might be similar, the sub-soil was probably very different.

The next point of debate was, "Whether the SEEDS for the following year's crop of artificial grass, should be sown with the BARLEY, or after it was up? the former had the most advocates, but the latter seemed to be an increasing opinion. All agreed on the advantages of selecting the best samples of seed, and also that it should be deposited as fleet as possible in a finely pulverized soil.

It appeared from the discussion, that very little barley was now sown by hand in this district, perhaps not above a tenth part of the crop, but in proof of the great importance of depositing the seed fleet, one or two members, otherwise great friends to the drill, stated that when the land was very fine, they preferred broad-casting, as they had suffered from the drill putting the barley in too deep, even when worked without weights.

The discussion was closed by the following

REPORT.

"That, in the cultivation for barley in this district, it is desirable; first—To plough as early as possible, and only once. Second—To sow very early if on heavy land, three bushels per acre being the usual quantity. Third—To deposit the seed as fleet as possible, whether by drill or broadcast, the former being recommended. Fourth—To divide the seed minutely, by having the drills very close, or by sowing part:—and lastly—To select the best seed, changing it frequently from light to heavy land, and vice versa."

At the Fourth Meeting, on the 16th April, the subject of "BONE DUST as a manure for turnips," stood first on the books; but before entering upon it, some little time was taken up in examining a simple machine for dibbling turnips on ridges, brought to the meeting by Mr. Fuller, of Topcroft; it consisted of a light box with a pole handle, the former perforated at the bottom, at the proper distance for the plants to stand, through which the seed escaped from the jar occasioned by striking the box on the ridge—one was to be carried in each hand, and thus two ridges would be planted at the same time. As drilling turnips, *if the land be ridged*, is universally practised in this district, it was not considered probable that the machine would come into much use; but it was so handsomely offered to the meeting by Mr. Fuller, who agreed to leave it that any member of the club might have a pair made from it, that the thanks of the club were unanimously voted to him.

Although no member of the Harleston Farmers' Club, who had ever patronized its library could be ignorant of the extraordinary effects wrought by bones in various parts of the kingdom; yet bone manure was a subject but little understood in a neighbourhood where artificial manure of any kind is rarely applied direct to the crop—for

although a large quantity of oil-cake is brought into this district, it is chiefly consumed by stock, and thus comes on the land in the farm-yard manure.

Much interest therefore was attached to the able exposition of the nature and properties of bones; their utility as a manure, and the proper soils and crops on which to apply them, given by the member who introduced the question. Some discussion afterwards ensued, as to their advantageous application to our heavy soils—but from the nature of the subject, and it having assumed so much the form of a lecture, no report was proposed;—as, however, the debate has led to the trial of bones against farm-yard manure on heavy land, the club will probably, another year, be put in possession of evidence which will approve or condemn their use in this district.

In pursuance of a resolution carried this evening, no meetings took place during the months of May, June, July, and August:—the experience of the previous year had shown, that, during the summer months, the farmer was so much engaged out of doors, that but few members had leisure to attend the club, excepting at a later hour than it was desirable to meet—and it was therefore thought better to decline assembling in the summer, rather than discuss interesting subjects with a limited number of members;—the club, in the interim, would not be forgotten, as the advantages of the library would still be going on. This arrangement will no doubt work well next year; but unfortunately, in consequence of the long vacation, so much business accumulated, that the

Fifth Meeting, on the 11th of September,

was totally occupied in dispatching arrears, and in selecting subjects for the ensuing meetings—and more particularly in making arrangements for the show of roots in November.

The committee does not, to prevent such an occurrence in future, recommend the plan adopted by some clubs, of choosing all the subjects at the commencement of the year, as many questions require but a short time for discussion, whilst others are necessarily adjourned to the next meeting, and thus great inconvenience ensues; but it suggests, that one of the subjects remaining on the notice book in May, be then appointed for the September meeting, and thus no time will be lost.

After this digression, we come to the

Sixth Meeting, on the 9th of October.

It has been the practice of the club not to pass resolutions upon any subject founded upon opinions alone, however feasible; but to adjourn such question till the stamp of practical evidence can be affixed to it.

At the September meeting last year, the subject discussed was, "The selection of SEED WHEAT, and the best method of planting it." Many points connected with that question, recommended by the introducer of it, were unanimously agreed to; but one, viz. "to plant less seed than was usual in this district," met with considerable opposition;—no positive evidence was, however, brought forward either way—and it was therefore "unanimously agreed, (we quote from your last year's report, page 14) that experiments alone could enable the club to come to any satisfactory decision on the merits of thick or thin planting. Following up this view it was suggested, that some of the members should make trial of a small portion of thin planted wheat, which was consented to by several, who

promised to plant one acre each, with half the usual quantity of seed, and report the result this time twelvemonth."

In pursuance of the above engagement, many experiments were last year made, and the same subject was named for debate this evening, that the evidence thus obtained might be laid before the club.

It will be necessary to state, that two bushels of wheat per acre is the usual seed for this district, almost the only variation being a reduction in the case of early sowing: the experiments, with one exception, were all tried with that quantity, against half of it. The results were singular, inasmuch as there was a remarkable difference, and at the same time a remarkable coincidence, in the evidence;—a difference, because there were as many experiments decided in favour of thick as of thin planting—a coincidence, because all the experiments tried with the dibble had one result—all those made with the drill a totally opposite one; the former gave from two to four bushels per acre produce in favour of thin seeding, the latter a similar increase from the thick plant. The excepted case alluded to above, was three pecks only, dibbled against five, but with a similar result, as the yield from the former exceeded the latter by three bushels! As regards straw, there was a trifling increased quantity from the greater seed, both dibbled and drilled, but it did not stand up so well as the crop from the lesser seed, and the latter had also the advantage in the quality of the sample.

Although we cannot congratulate the club on having settled the question, which it was the object of the experiments to decide, viz., "whether thick or thin planting of wheat be more advantageous," yet most convincing testimony has been added to what was generally before understood, that much less seed is required with the dibble than with the drill, to produce the same or even a greater crop. Numerous unsatisfactory experiments have been tried with the dibble against the drill, in the same field, with a similar quantity of seed;—unsatisfactory, because the results have been frequently in favour of one, frequently in favour of the other; and still more often, there has been no difference:—but here is unanimous testimony, that with half the quantity of seed, the produce will be as great as from the dibble;—and when the number of acres of land annually under cultivation with wheat in Great Britain is considered, one bushel per acre saved from the seed would be no unimportant addition to the stock for consumption.

The Seventh Meeting, on the 6th November,

was allotted to the **SHOW OF ROOTS**, and the discussion in the evening fixed to take place, "On the best method of preparing the land for the future Root Crops."

The exhibition was not so large as had been anticipated, owing perhaps to the very unfavourable state of the weather, not only on that but on the preceding days; the quality, however, of many was very excellent, particularly for a bad season, and in variety of specimens, the show was certainly rich. Thomas Lombe Taylor, Esq., sent not less than fifteen different varieties of beet, Swede, and common turnips, all marked and named, for which a vote of thanks was unanimously accorded to him.

We regret that this exhibition did not excite more interest; for, as the difference in produce is

very great between a good and bad stock of turnips, it is only by a comparison of the different varieties that the best can be selected. All those members who were present could not but be struck with the difference in quality between the best and worst specimens exhibited; and, in proof of the importance of growing the very best kind that can be obtained, the following experiment was related in the evening by one of the members. Three different varieties of Swede turnips were drilled in alternate rows across a field, on the same day, and were all taken up and carefully weighed also at the same time; the produce of one of them was upwards of six tons per acre more than either of the others!

The subject for discussion, this evening, was interesting, and it attracted a large body of the members of the club, all of whom, we are persuaded, would agree with your committee, that it was a meeting of which the club might justly feel proud—whether from the spirited manner in which the debate was kept up, or from the information elicited by it.

The question chiefly turned on the best method of cultivating heavy land and soils uncongenial to the growth of turnips, the meeting justly considering, that but little difficulty existed in preparing light or what are termed turnip lands. The advantages of growing a good crop of roots on heavy land (if it can be done without injury to the future crops, and of which there is no danger if a good tilth be obtained for the roots) are so great, that the meeting entered with much spirit upon the subject. The discussion commenced with the successful competitors of the day, declaring the mode of cultivation by which they had obtained such excellent roots, but it soon became general. One member then detailed a plan he had successfully followed, of cultivating his wheat stubbles as soon as possible after harvest, with Biddell's scarifier, using no other implement till the land was ready for the manure, when he ridged it with the double-breasted plough, completing the tillage without once using the common plough. This somewhat new method was highly approved of for heavy land, but it led to a digression on the landlord's power, under the usual leases and agreements in this district, of compelling a stated number of ploughings and harrowings.

As this part of the question was highly interesting, and appeared likely to trespass too long on the original subject, it was stopped, by an understanding, that at the first open meeting the question of the "utility of the compulsory cultivation clauses in leases" should be brought before the club. The discussion on root tillage was again renewed, and continued at the express wish of the members, beyond the usual hour for closing the meetings. After viewing the matter in all its bearings, and hearing a great deal of valuable practical evidence, the subject was at length terminated by the unanimous adoption of the following

REPORT.

"Commencing with the wheat stubble, it is recommended to take the earliest opportunity of breaking it up in *dry weather*, either by the plough or by some other implement, such as Biddell's scarifier—the former can often be used with great success in dry weather, by taking the breast off, when with the breast on it could not be got through the land—but the scarifier was generally recommended. This system of autumn cultivation

is to be pursued as frequently as possible, by which means the land will be ready for the manure in the winter, or as soon as the latter can be obtained. The manure is recommended to be applied on the ridge system, and immediately covered up by splitting the balks, leaving nothing to be done in the spring but drilling the seed; but where the manure has been applied and covered up very early, it is advisable to lay open the ridge, and turn it back again, before sowing: seed of the very best variety should be selected, and not sown sparingly, a little being added for the fly, as that visitor may always be expected early in the season, and on heavy lands it is useless to sow late. As soon as the plants are visible, the horse-hoe should go to work, and be freely applied all summer when required; not earthing the plants up, but rather pulling the mould away from them—the latter remark more particularly applying to mangel wurzel.

The foregoing report applies exclusively to the cultivation of heavy land, but in the show of roots this day, proof was afforded of the value of deep tillage to light land, by the exhibition of a turnip grown on gravelly land *subsoiled*, with a tap-root upwards of twenty-eight inches long.

Ninth Meeting, on the 4th of December.

The early part of this evening was taken up in making arrangements for the annual meeting in January. After which the subject appointed for discussion was commenced, viz., "the comparative advantages of THRASHING CORN AND SEEDS with the FLAIL or by MACHINERY."

Wheat was the first grain mentioned, but on this there was no debate, all present agreeing that it was decidedly advantageous to use machinery for thrashing wheat.

As regards barley, there was much variety of opinion, and the discussion chiefly turned on this grain. The advocates for the flail contended that it was cheaper, that the corn was brought in a better state to market, and that the straw from it was more valuable—three important points. On the other hand, the advocates for machinery would not allow that the corn was injured—at least their arguments were founded on the supposition that improved machinery was used, which would not injure the barley, and proof was given that such machinery could be obtained: they admitted that where straw was required for feeding, the flail alone could bring it daily fresh and sweet, but they questioned the policy of a farmer consuming any straw with stock; but their chief reliance was on the following important fact,—that a farmer who had a machine of his own, could thrash his barley during the winter season, in the wet days, when neither his horses nor all his men could otherwise have been employed; that the horse labour, therefore, was but a trifling charge, and that more work could be done on the same farm with a given number of hands, for otherwise many of the latter must, in fine weather, be employed in the barns, when they might more profitably be at work on the land; and that, in wet weather, many of them must be entirely idle. With a view to reconcile the contending parties, the following resolution was proposed, and unanimously carried:—

That for thrashing wheat, machinery is decidedly to be preferred; but for barley and other spring corn the flail is better, inasmuch as it is quite as cheap, and the straw is fresher for feeding. But on large occupations, where a machine

is kept, it can be used in wet weather when the labourers and horses cannot be employed out of doors, and the regularity of its motion ensures obtaining all the corn from the straw, without the constant personal inspection which the flail requires. In recommending machinery for barley on such occupations, it is understood that improved machinery be used which will not injure the grain.

The secretary's accounts, which we have examined, show a balance of 10l. 16s. 3d. in favour of the club. Your library has been increased by the addition of most of the works on agricultural subjects which have been published during the year. The present vastly increased demand for such books, caused mainly by the taste for reading set afloat and encouraged by farmers' clubs, will speedily induce men of science to turn their attention to the subject; and we may soon hope to see the agricultural literature of this country on a par with the value of the science.

In closing their report, your committee beg leave to add a few words on the general establishment of farmers' clubs. The Harleston club may congratulate itself on being early in the field, to show the practicability and advantage of such meetings: we convinced ourselves, during the first year, that discussing the imperfect points of our local system of agriculture, would be of great advantage to us; the list of such subjects is far from being exhausted, but a wider field is before us, and we have great inducements for early and renewed exertions. We did not, perhaps, at first contemplate more, than that by frequently assembling together, and talking over such subjects, the least informed amongst us might share the knowledge of those who best knew and best practised good farming in this district; but the general establishment of such societies—and they are spreading through the length and breadth of the land with an unexampled rapidity—will demand more from us, if we would not be left behind in the great race for agricultural improvement now going on. The time has gone by when we, of a county standing high in agricultural fame, may rest satisfied with such report—we cannot keep our position without exertion, and, from discussing our own, we must proceed to examine the systems of other counties, and copy from them wherever they excel us. The reports of farmers' clubs now established or establishing in every county, will give us this opportunity; and we would strongly recommend the devoting of some fixed evenings to the reading of such reports, and discussing such results in them as may differ from our own practice.

Amongst the subjects of which notice has been given for debate next year, is one, which we conceive, of vital importance;—"The utility of some of the compulsory *cultivation* clauses in leases;"—these clauses compelling certain rotations of husbandry, and certain tillage for particular crops, have, undoubtedly, been of great advantage; they were framed for the benefit of the landlord, to prevent tenants from over cropping, and in so doing they have been useful to the latter as well as the former; but the time has probably arrived when some of them may advantageously be dispensed with—we mean advantageously to both landlord and tenant, (for it is but a truism now to say that their interests are united) and still more advantageous to a third party, who, although omitted in the contract, has, after all, the greatest interest in the matter—we

mean the consumers. The grand object of all parties should be, to make the land produce as much as possible; and if, as we think was clearly shown in the discussion on root tillage, some of the existing clauses in leases tend to prevent the introduction of the best and cheapest husbandry, it is certainly to the benefit of all parties that they should be removed or altered; and when it is considered that many of them were framed to suit the practice of husbandry which existed upwards of a century ago, it is certainly feasible that some change in them, to meet the present improved system of cultivation, would be advantageous. We would recommend, then, that the discussion of this important question be deferred to the latter part of the next year—say till the September meeting—to allow time for the receipt of communications on the subject, which we earnestly request from all other clubs, or from individuals who may feel an interest in the matter, and we would particularly seek such information from those landowners who will favour us with their views on the subject; for let it not be forgotten, that to make a useful and permanent change, their interest must be *equally* consulted with that of the tenants.

Those who have seen a favourable opportunity of changing the rotation of cropping which their lease enforced, but dare not, and those who have paid a heavy forfeit for breach of covenants, will read with pleasure and surprise the following extract from "an Essay on the Agriculture of Fifeshire," by Mr. George Buist, in the last volume of the Quarterly Journal of Agriculture, page 315.

"A much more judicious system of arrangement in reference to rotation, than that which formerly obtained, has recently been introduced. The tenant is now left at liberty to treat his ground as he may think fit during the earlier part of his lease, so as to give full scope for the employment of his industry, capital, and skill—he is towards the closing years of his occupancy (generally nineteen years) bound merely to such a system as may prevent him from scourging the ground, so as to protect the interests of the proprietor. *From what has already been said, it will be expected that the very happiest condition in the relations of landlord and tenant should exist in Fifeshire.*"

To this passage we solicit the attention of all parties interested in the question, and we again request communications on the subject to be addressed to our secretary, previous to our meeting in September, and also the attendance of any persons who may feel inclined to be present at the discussion on the 24th of September.

For the Committee,

R. B. HARVEY, Secretary.

EXTENDED CULTIVATION OF FLAX IN IRELAND.—Notwithstanding the benefits that Ireland has derived from the linen trade, little attention has been paid to the improved cultivation of flax, and its culture has hitherto been totally neglected in the most fertile parts of that kingdom. An attempt is, we are glad to learn, about to be made to demonstrate the capacity of Ireland to produce flax equal to the finer sorts of the Continent, and a society is in formation at Belfast for that purpose. No better opportunity for the exhibition of Irish patriotism was ever offered than this. May we trust that the London Companies of the Corporation interested in the north of Ireland, will effectually support this undertaking, the success of which must improve the value of their estates. Mr. Cramsie of Belfast will receive all communications on this subject,

THE TRIAL OF PRISONERS

AS IT AFFECTS THE COUNTY RATES, &c.

We believe there are few persons competent to pronounce an opinion, however much they may be disposed to admire "the wisdom of our ancestors," or to preserve "the ancient landmarks," who will not admit that time and circumstances have worked such changes in the condition of the people of this country, as to render many rules and regulations heretofore observed with a degree of religious respect and reverence ill adapted to the present state of society. Without in any way adverting to the political character of the measure, we apprehend that it will be readily conceded that the machinery introduced by the Reform Bill for taking the votes of the electors, is a decided improvement upon the old system. The most zealous opponent of the measure will admit that it is more conducive to the interest both of the candidate and the elector, that the election should be terminated in a day or two, rather than be continued in drunkenness and debauchery for fourteen days; that the elector should be enabled to register his vote within a few miles of his own residence and return to his occupation, rather than be conveyed forty, fifty, or sixty miles from home, and perhaps detained there in consequence of capious but legal objections, for many days at the cost of the candidate. The old jury system underwent great change and undeniable improvement by the legislative measures introduced by Sir Robert Peel, although *much—very much remains to be done*. The machinery of the Poor Law bill as regards the settlement and removal of paupers and other such like matters, has been productive of the most beneficial results. The establishment of the Metropolitan Criminal Court although an inroad upon the privileges of the authorities in the respective counties, and an infringement upon the ancient boundaries of those counties, has nevertheless lessened the expenses upon the rate-payers, has expedited the proceedings of justice, and has, in many cases, relieved the innocent from the infliction of a protracted imprisonment, before an opportunity could be afforded him of vindicating his innocence. The case, however, which is most analogous to that to which we are about to call attention is that of Petty Sessions. It is well known to our country readers, that under the old system, in many instances matters occurring within a hundred yards of the place where one petty sessions were held, must have been heard at another petty sessions many miles off. This evil has been remedied. We now solicit the attention of members of the legislature especially to another evil of a most glaring description, and which is described in such a clear and perspicuous manner in the petition of Mr. John Houghton, that we will not mar the effect by attempting to describe it in our own language. The petition, which has been presented to the House of Commons by H. Handley, Esq., M.P., and will be presented to the House of Lords by the Duke of Buckingham, runs as follows:—

The Humble Petition of John Houghton, of Broom Hall, Sunning Hill, in the County of Berks.,

Most Humbly Sheweth,

That whereas in different parts of the United King-

dom much delay and inconvenience arises to many of Her Majesty's subjects from the great distance of particular places from the County Town of the County in which they are respectively situated :

As, for instance, part of the county of Wilts., although only *ten miles from Reading*, is upwards of *sixty from Salisbury and Devizes*.

"That parts of the county of Hertford, although *thirty miles from Hertford*, are not more than *six miles from Aylesbury*.

"That parts of the county of Buckingham, although only *ten miles from the town of Northampton*, are more than *thirty miles from the borough of Aylesbury*.

"That part of the county of Northampton, although only *ten miles from Oakham*, is upwards of *thirty miles from Northampton*; and part of the county of Lincoln, although upwards of *fifty miles from Lincoln*, is only *ten miles from the town of Oakham*; and the town of Strabane, being in the county Tyrone, nearly *thirty miles from Omagh*, and only *one mile from the town of Lifford*. That part of the county of Donegal, being distant from the town of Lifford *forty miles*, is only *ten miles from the city of Derry*; and there are also many other places similarly situated, too numerous to mention, causing great expence, inconvenience, and loss of time, both in the conveyance of prisoners and attendance of witnesses and jurors. And whereas a great saving of both time and expence would be effected by such places, towns, &c., as aforesaid, as well as others similarly circumstanced, being allowed to commit their prisoners to the nearest county gaol, and likewise that witnesses and jurymen should also attend there. And in addition great inconvenience and loss of time arises where particular countries are so divided that the Assizes are held in two different places, by jurors being summoned to attend at those Assizes held at the greatest distance from their place of residence; for instance, *many jurymen in the county of Suffolk are summoned to attend at Bury*, a distance of *upwards of twenty-four miles*, although *residing only eight miles from the borough of Ipswich*.

Had Mr. Houghton merely called attention to the subject by pointing out the evils of the system which are productive of serious inconvenience and loss to many persons, and more especially to the agricultural class, he would have well earned their grateful acknowledgements; but he has gone further, he has suggested the remedy—simple, and effective. We give it in his own words, as expressed in the petition.

"Your petitioner therefore most humbly prays, that it may be hereafter enacted, That it shall and may be lawful for any parish, township, or place being so situated as to be nearer some other county gaol than the one in which county such parish, township, or place are situated, to call a meeting of the inhabitants thereof; and if a majority in number of such inhabitants, being owners and occupiers resident therein, liable to serve on juries, shall be of opinion that it would be more convenient for such parish, township, or place, to join some other county gaol, or another division of the county, if the county should have two assize towns, so that no person should be compelled to attend as jurymen but at the assizes, &c., held at the town, &c., nearest to his residence, provided they so petition as aforesaid. That in such case they shall petition the Secretary of State for the Home Department for the time being, who shall issue an order to the governor of such county gaols respectively, to admit the prisoners from such parish, township, or place, into such county gaol. The expence of maintenance of such prisoners, and also the conveyance of such prisoners to such gaol, and the expences of such trial shall be made out and sent to the Clerk of the Peace for such county where such parishes, townships, or places are situate, who shall repay the same to the Clerk of the Peace for the county that may have incurred such expence.

"And your petitioner further prays, that it may be enacted, That all persons liable to serve on juries in such parishes, townships, or places, petitioning as aforesaid, shall have their names sent to the county Sheriff, &c., nearest to their place of abode, who shall summon them as jurymen accordingly for such county or division, &c., thereof, instead of their being liable to serve as heretofore under the now existing laws and regulations.

"And also that it may be further enacted, That nothing in the alterations your petitioner humbly prays may be effected, shall be considered to interfere with the Civil Law.

"And your petitioner as in duty bound will ever pray, &c."

Having clearly pointed out the evils of the existing system, and prescribed the remedy, he thus pithily assigns his "reasons" for proposing the alteration:—

- 1st.—The immense saving that will be made in the county rates, in the conveyance of prisoners and witnesses.
- 2nd.—The great saving of time both to witnesses and jurors, and preventing the compounding of felony for petty offences.
- 3rd.—The great benefit it will give to the prisoner by being nearer to his home and his friends, thus affording him a much better opportunity for preparing his defence.

We trust that a proposition calculated to effect so much good will not be lost sight of amid the squabbles of party. It is a subject with which almost every member of both Houses of Parliament, from his experience in county business, is well acquainted; and none more so than his Grace the Duke of Buckingham and Mr. Handley, who have taken charge of the petition. In their hands we are content to leave it, knowing well their devotion to the agricultural class, and their ability to bring the matter to a successful issue.

ON UNDER-DRAINING.

SIR,—In the *Mark Lane Express* of the 18th inst., you were kind enough to insert a few remarks of mine, on the subject of under-draining of land; it was endeavoured therein to prove a former correspondent of yours, who recommended the drains to be cut up and down the field intended to be drained, instead of across it, to be erroneous in principle, and incapable of producing but little benefit to the land. Intending to have submitted a few additional remarks to my former observations on the subject, I have purposely deferred them until now, in order to see if any practical agriculturist would endeavour to have proved my system was incorrect, and produced his reason for his dissent from them. Not finding that the reason, I am inclined to hope a few further remarks on the subject may not be felt obtrusive. Without further apology, I beg to state what season of the year, and succeeding what crop, in arable land, will be found the most convenient.

It will be found the autumn of the year, and after a wheat crop, decidedly the best period for several reasons, viz., it often happens, that the field intended to be drained, is only partially wet, in spots dispersed over various parts of it, and other parts as dry as can be wished; in order, therefore, to place your drains only where they are needed, they should be marked out in the month of March, preceding the time of draining, when after a few dry days every

wet part will appear so clearly as to show exactly where the drains should be placed, and which should be denoted by stakes driven in firmly, to remain until the autumn following. I shall only make one more remark on the subject at present, and which will be found highly necessary to complete draining, viz., that the top drain should be at the very highest part of every wet part, as it does not drain the land above it; and if so, the water will flow over the drain below it.

I must apologize for having trespassed too much on your valuable space.

I am, Sir, most respectfully,
Your obliged humble servant,
JOHN WREKFOR.

Broughton House, Jan. 29th.

LETTERS OUT OF A BARN.

No. I.

TO THE EDITOR OF THE LEEDS WEDNESDAY JOURNAL.

MISTER EDITOR,—Did you ever, or will you, insert a letter out of a barn? Or are you so entirely in love with mills, as to quite reject anything that comes from so dusty,—illiterate, ignorant looking place as a barn? Let me tell you, Sir, however, that a barn is quite as important, and more necessary, than even a mill. Men might live and thrive, and newspapers might be printed and read, if there were no steam spinning jennies—but no barn! and the mouth is stopped—all will soon be silent. I speak not to disparage your manufactures. I want the barn not to frown at the mill, nor the mill to despise the barn. We shall live and prosper so long as we go hand in hand, as we have done for some years; but if any man, or set of men, disunite us, he or they ought to be beheaded for a base, selfish, rebel and traitor.

Were you ever, Sir, in Bilsdale? If not, and any body were to set you down in it bludfold, you would never get out. It is a deep cold valley on the top of the Hambleton hills, almost out of the world, and where

"Tis as cold as ice,
T'yattest! day I summer."

Well, Sir, we pay ten shillings an acre for our land, lose one crop in seven years, and are often harvesting at Christmas! We have a hawker who comes once a quarter, and he told us they were going to let foreign corn come in free, and bread would be very cheap. Why, Sir, it set us all in a sud stew, for our rents are so low, our landlords cannot lower them, and if corn is to be so very cheap, we must give up. We saw nothing but coming to Leeds, Sir, leaving our barns, and asking either for employment or keep at the mills.

Well, Sir, I determined I would see how things were going, and if I could learn a little milling before this came to pass; so, Sir, I set off to Leeds to see if I could make any thing out. I called at a little alehouse as soon as I got in—it was on a Tuesday, for what is the use of going to a town off the market-day, when nobody's there? Some dark looking men came in, and said they were going to the Cloth Halls. Cloth Halls thought I—why there must be some tents put up, where all these mill folks meet to make cloth in, so I shall see the whole at work. Well, Sir, I follows them, and came to some long rooms, longer than any I ever saw at any of the great inns, and here were hundreds of folks standing behind little stalls, selling cloth—but not a spinning jenny could I see.

I looked on a bit, for there was nothing to pay, and at last my eyes fixed on two persons making a bargain, so I went to listen as we do at fairs, and put in a word if I could. Well, Sir, who in all the world should it be

who was buying the cloth, but old Tom Tape, the quaker shopkeeper at our market town, who was purchasing the whole of his cloth for ready money, to the extent of about one hundred and seventy pounds. The bargain was immediately struck, and the old quaker simpered awfully to see me there. Dear me, Sir, I begun to wonder where the old codger got all his ready cash; but I soon reflected how the farmers, after they had sold their corn, tripped away to his shop, and purchased woollens, linens, or cottons—more and better, if the corn sold well; less and inferior, if it sold low. I expected your great cloth market would have been by the side of a wharf, and all the shipping busily engaged in carrying the cloth away to foreign countries. Un-march-of-intellect as I am, Sir, I could not but see how vastly better it is for Tape to come and buy cloth, and pay for, and give it to the waggoner, than for men, and ships, and porters, and wharfingers, and commission dealers, and dangers, and risks, and money long out of pocket, to be faced, and all a speculation after all!

Law, thought I? and what will become of the hundred and seventy pounds? Why it will go to pay more wages and set hands to work to get more cloth ready against next market-day. The men get good wages, if the markets be good; they go and purchase bread cheap. It is not so cheap, they say, as it is in Poland; but who cares? they have plenty to spend in it; and if it were ever so cheap, whose benefit would it be if there was no money to buy it with?

Sir, I thought, come! if these Leedsers be sensible men, they will not wish to banish their home customers, and let go a bird in the hand for the chance of catching two in the bush. If ye can do with this rum stuff, I'll write another letter or two, telling you all I saw—as soon as a little straw and chaff is got out of my barn; and I remain, your obedient servant,

CHRISTOPHER CLODHOPPER.

Bilsdale, Jan. 21.

MR. CHAMBERLAIN'S (OF DESFORD) PRIZE CATTLE.

TO THE EDITOR OF THE LEICESTER JOURNAL.

SIR,—Having just noticed in your Journal of the 15th ult. the weights of Mr. Chamberlain's (of Desford) sheep, shown in classes 10 and 12 at the late Smithfield Club Show, I am induced, through the medium of your Journal, to inquire if the weights there given are correct; it appearing that the sheep shown in class 10, fed upon vegetable food only, are much heavier than those fed upon oil cake and peas in class 12: and as you give the weight of my sheep also in those classes, perhaps it will be as well to give an abstract of them all, from your Journal of that date.

Class 10.—For vegetable fed sheep.

	st.	lb.	st.	lb.	st.	lb.
Mr. Chamberlain's..	13	4	..	16	7	.. 16 2
Mr. Painter's	15	6	..	16	4	.. 17 6

Class 12.—For cake fed sheep.

	st.	lb.	st.	lb.	st.	lb.
Mr. Chamberlain's..	14	2	..	14	6	.. 15 2
Mr. Painter's	20	2	..	20	4	.. 22 0

By the above it will be seen, that there is a great difference of weight between the sheep shewn in class 12 by myself; therefore, I am willing to think that there must have been some error in your report as regards the weight of Mr. Chamberlain's sheep, which I have no doubt Mr. C. will be glad to explain.

The above remarks are offered, with a view to set at rest the constant inquiry that is being made to me in my neighbourhood, and not, I assure you, with the slightest motive of calling into question the merits of our animals.

I remain, Sir, yours respectfully,

JOHN PAINTER.

Burley, Oakham, Jan. 30, 1841.

* Hottest.

WOOL.

TO THE EDITOR OF THE SUFFOLK CHRONICLE.

SIR—Having given my opinion as to the future prospects of the wool growers, I proceed to state the reason why I suspect the price will be still lower, and in the end gravitate to the lowest price the colonial or foreign growers will supply us at; as the prices of all things are reduced to the minimum at which they can be supplied with profit when competition exists.

The annual value of wool grown in England in 1815, was estimated at one-fifth of the rental of land, and in 1820 at but one-eighth of the rental, but by adding the value of wool imported, the whole value was found to be one-fifth as in 1815, but the home growers had lost the difference.

Thus, as the rental was estimated at forty millions, the value of wool in 1815 was eight millions sterling, and but five millions in 1820; the receipts of the home growers were reduced three millions by the immense import of wool in 1818.

The national stock of sheep in Great Britain was estimated in 1818 by Arthur Young at thirty millions, and the produce of wool at 120 million pounds.

The quantity of wool imported in 1818 was equal to one-fourth of our annual growth; and our own growth, with a comparative small import of foreign, and very small supply from our Colonies, had previously supplied the demand.

The consumption of Wool no doubt is increased, but however great it may be, or become hereafter, the supply must eventually exceed the demand, as there is an almost unlimited extent of pasture yet unappropriated in our colonies and other countries.

The stock of Sheep is rapidly increasing on the continent, and the same progressive increase has continued in Australia and Tasmania up to the present time, as from 1829 to 38; and we may expect that the supply from thence and the Cape may be treble in a few years, to what it was in 1838.

Our national stock of Sheep may now be equal to what it was in 1818, and from selection and superior management, the produce of Wool is supposed to be increased one pound per sheep on half the flocks in the kingdom.

The import of Foreign Wool in 1813 was $7\frac{1}{2}$ million lbs., of Colonial one million, and our own growth about 120 millions of lbs.

The import of Foreign wool in the year ending Jan. 5th, 1841, and entered for home consumption, was 56,734,625 lbs., at an average of 1s. 4d. per lb., and total cost of 4,255,596l. (See *Mark Lane Express* of last week.) Thus it appears, that the import of Foreign and Colonial is near 8 times as much as in 1813, whilst our own produce has increased but 10 per cent., and that from extra cost in keep and attendance on the same number of sheep. Thus the Foreign flocks seem to be increased 13 millions; the Australian, Tasmanian, and South African, 3 millions; whilst our own flocks have barely been increased to the amount of reduction in 1821, and following years, from the low price of wool and mutton; and the fatal destruction of sheep by the rot afterwards.

The reason why the Foreign and Colonial flocks increase so fast is, because wool is their main object; few lambs are killed; and ewe lambs never. Old sheep supply the demand for mutton, and in some parts so glut the markets as to be but 1d. per lb.; but in England, wool, tallow, fat, lamb, and mutton combined; ewe and wether lambs are slaughtered indiscriminately, if fat enough to sell; and numbers of ewes and wethers at eighteen months old. Thus, when our sheep stock are reduced, it takes a long time to replenish the stock, as withdrawing the ewes and ewe lambs from market, reduce the supply of lamb and mutton, and cause a rise in price so as to induce a sale, and check the increase of stock. Such has been our case; the cause of which I must leave for a chapter of accidents.

I remain, your humble servant,

CHAS. POPPY.

Witnesham, Jan. 27.

AGRICULTURAL IMPLEMENTS.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR—In the last number of your valuable journal, I observe a letter on agricultural implements, signed "P." in which the following paragraph occurs:—"The next implement I shall mention is the lighter of the two double ploughs shown by the Messrs. Ransome. It was made, as they inform me, at the suggestion of Mr. Pusey. Two horses can draw it without difficulty in moderately free stubble, and I am now working it with three horses, in an old grass ley; therefore, by means of this plough, as much work can be done by one man and two, or at most, three horses, as both single ploughs by two men and four horses;" and further on it says—"it was proved by a dynamometer, that two horses were pulling a weight of 20 stone when they drew a Scotch single plough, and three horses drew only a weight of 26 stone, when it was changed to one of Ransome's double ones." Now, Mr. Editor, I think it quite impossible that you can render a greater service to the readers of your valuable paper, and to the agricultural world in general, than by inquiring as to the merits of this newly invented plough, and informing them as to the practicability of substituting it for the common plough; also as to its price, where it is to be got, &c., &c. If it be found to answer well, it will be the greatest improvement that has ever been made on the construction of the plough; for it will at once diminish, by one-third, the heaviest item of our farm accounts, viz., the keeping of farm horses. If ever we are to have cheap corn in Britain, without injuring the grower, it will be by means of such inventions as these which tend to diminish the cost of production.—I am, Sir, your obedient servant,

A CONSTANT READER OF YOUR
VALUABLE PAPER.

Ross-shire, Jan. 23.

TITHE COMMUTATION.

The following is the average of wheat, barley, and oats for the last seven years, up to Christmas last, by which, according to the Tithe Commutation Act, rent-charges are regulated:—

AVERAGE PRICES FOR SEVEN YEARS PER IMPERIAL
BUSHEL, FROM THE LONDON GAZETTE.

	Wheat.	Barley.	Oats.
	s. d.	s. d.	s. d.
To Christmas, 1835 ..	7 0 $\frac{1}{2}$	3 11 $\frac{1}{2}$	2 9
.. 1836 ..	6 8 $\frac{1}{2}$	3 11 $\frac{1}{2}$	2 9
.. 1837 ..	6 6 $\frac{1}{2}$	3 11 $\frac{1}{2}$	2 8 $\frac{1}{2}$
.. 1838 ..	6 6 $\frac{1}{2}$	3 9 $\frac{1}{2}$	2 8
.. 1839 ..	6 9	3 11 $\frac{1}{2}$	2 9 $\frac{1}{2}$
.. 1840 ..	6 11 $\frac{1}{2}$	4 1	2 10 $\frac{1}{2}$

And the amount to be received for the year 1841, for every 100l. of rent-charge will be 102l. 12s. 5 $\frac{1}{2}$ d. or rather more than three and three-quarters per cent. above the amount of last year.

BONE DRILLS.

SIR.—Can you inform me through your paper where the best and cheapest bone drills are manufactured, and the cost price; capable of drilling two rows of turnip ground at once, twenty seven inches apart? I am, your obedient servant,

Feb. 4, 1841.

A SUBSCRIBER.

ON CORNS IN HORSES' FEET.

SIR,—In a late publication of yours, the question is asked, "is there any cure for corns in horses' feet, and what is it?" I beg leave to offer the following remarks:—This disease is produced always by some hard substance pressing on the sole at the quarters, chiefly shoes left too long on, till the heels become buried in the hoof, the fibrous substance which lies between the sensible foot and the absolute horny hoof becomes inflamed by the pressure, and the inflammation produces a hardness of the spot, similar, if I may so express it, to a knot in a piece of soft timber. When this is pressed on, it has all the effect of a bit of gravel or some foreign substance lodged in the part, and the action of the pressure causes it to irritate the surrounding parts, which are very sensible, and the horse cannot bear firmly on the foot. When this lump or hardness is wholly or partially cut away by the draw-knife, some relief is obtained; but the knife, in removing the corn, wounds, in some degree, the surrounding soft parts, and the disease is reproduced,—for after a while it is found to be as bad as ever; and this is sure to be the case when any cauterizing, either the hot iron or burning stimulants, are applied, as one or other always are, or perhaps both. These shrivel up and convolute the fibrous texture, and quickly form a new corn, for they actually produce an artificial one, but the removal of so much horn as has necessarily been affected in the operation, in order to get at the seat of the disease, prevents any immediate pressure on it; because, so large an excavation having been made, the part is left hollow, the cavity being generally filled up with some substance, either soft, or "intended to be so"—tow, smeared with various quack preparations mixed in grease, or, in place of tow, wool, which is better, or sponge. The heel of the shoe is thinned opposite to the place, or the shoe is cut short, so as not to cover it at all, or a bar shoe is applied. The latter is in itself a source of lameness; the thinned shoe bends, and so makes the matter worse; and the short shoe affords no protection—the stuffing, be it made of what it may, gets beaten into a hard mass, and becomes itself an injurious lump, and the disease is constantly reproduced. The most judicious remedies are therefore only palliative while the horse is employed at his ordinary duties, or kept in a stable where his feet are dry and the hoof hard; no—the hoof must be *dilated* and softened by constant moisture, all irritating pressure must be avoided; and under these and only these circumstances, nature will work the cure, by letting the injured part grow out of the foot; and let no injury or pressure come at it till the then existing hoof is quite grown away and a new one formed. Therefore my answer to the question is—palliate the evil as well as you can, by keeping the hoof constantly pared away between the corn and the ground, but do not wound, in your vain endeavours to cut it out; avoid the hot irons, &c. above mentioned; keep a bit of sponge softly put in, merely to keep out gravel and keep the spot moist; and when the season arrives, turn him out without any shoes, into a soft marshy place, where his feet must be in a constant moist state for three months, at least: by that time the hoof will be altogether renewed—the diseased part will have grown out—and if there is no new injury, there will be no new corn; in short, the cure will be perfect. I would not presume to put forward this if it was mere theory—a habit but too common among agricultural writers, which only have the effect of amusing and leading

their readers astray. The above suggestions are, I assure you, the result of practical experience.

While on this subject, I beg to offer a word on the subject of the feet of horses and cattle in general. Dry standing is the prolific source of many of their diseases; the effect of long continued drought is, to contract hoof of every kind. The foot of a hoofed beast is an extremely tender and sensible member, inclosed in a hard inextensible box. If this box is large enough, the foot is at ease; but if it is contracted in its dimensions and shrunk up by drought, it becomes a shoe that pinches; the sensible foot gets inflamed and uneasy; preternatural activity in the secreting vessels (always the consequence of inflammation) takes place; unusual secretions are produced, which cannot be evacuated through the shrunken pores of the hardened hoof; these secretions become morbid, and must force their way out somehow—thus thrushes, contracted feet, decayed frog, &c. Grease is often applied by way of softening the hoof—this has quite the contrary effect; it fills up and obstructs the pores that yet remain unclosed, effectually preventing exudation from within, and the absorption of moisture from without. It is a remark often made with regard to stall-feeding cattle, "that beast won't stand the stall—he gets tender on the feet." This is from the dryness of the standing; the hoofs get contracted, the beast stands in pain and cannot thrive, and the time and feeding are thrown away. I lately saw two very fine blacklocks, in the county Galway, which could not be fattened to near the weight they otherwise might, from this cause; under a mistaken idea, their feet were well greased; but if they had the advantage of a soft poultice, sufficiently often allowed them, the object would have been much better attained. Moisture, I repeat, is the thing for diseased hoof, if the disease, as in mine cases out of ten, originates in dryness. I am, Sir, yours,

E. MAUNSELL.

P. S. Let it not be inferred from anything herein, that I would have cattle kept standing in dirt.

ON THE QUARTER EVIL.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—As I conceive it the duty of every one to give any information which may prove useful to his neighbour, I beg to give the following in answer to an enquiry made by your correspondent "A Subscriber," page 74, in your first number for 1841, who has been so unfortunate as to lose several of his cattle by a disease called Quarter Evil, or inflammatory fever. The first step to be taken, immediately on perceiving the animal ill, is to bleed freely from the neck vein, until it has the appearance of being sick, and after bleeding to administer a dose of Epsom salts; and thirdly, insert a rowel in the dewlap: the bleeding and physicking to be repeated every twelve hours, until the animal seems relieved. I myself have cured several cases amongst my own cattle by the above treatment, in some of which the disease has been so far advanced as to yield a sort of crackling noise when pressed with the finger upon the quarter affected. The animal to be taken under cover, and fed upon oatmeal gruel.

I remain, your humble servant,

A NORTHUMBERLAND FARMER.

Newcastle, Jan. 22.

ON DRAINING AND SUBSOILING HEAVY LAND.

Although subsoiling has been, for some time past, strongly recommended by experienced agriculturists, —and there can be little doubt of the benefits that would accrue from the use of the subsoil-plough on aluminous soils where the substrata is usually hard and retentive of water—yet it must strike an observer how slow the system is progressing on these heavy soils. The question will then suggest itself, “What is the reason that the strong land farmer does not generally avail himself of this great improvement in agriculture?” I shall endeavour to answer this question by showing that the system recommended for using the Deanston plough cannot be practised, to any advantage, on a great portion of the wheat and bean soils of England, and that a different method must be pursued on these soils before any advantage from subsoil-ploughing will show itself, so as to induce others to imitate the few who are trying it as an experiment. Heavy or strong land (the finest wheat and bean soils) has been for generations past, and is at the present time, cultivated in high ridges, or lands, as they are called here; this was necessary before furrow-draining commenced, to get rid of the superfluous water which would destroy the crop on such soils, and even if furrow-draining is resorted to, it must take considerable time to reduce these ridges to the flat, for unless it be done gradually, the subsoil of this kind of land will (if brought to the surface in too large quantities) make it barren and unproductive for some years. This is well known to practical farmers on these soils, and often prevents them from ploughing even so deep as to keep up the necessary staple of the soil. Now to use the subsoil-plough beneficially, the land of this description should, in the first place, be thoroughly drained, or otherwise the additional depth gained by that plough would only contain an additional quantity of moisture, which would starve instead of nourish the plants on the surface. It is also requisite, in using the subsoil-plough, that it should go in the contrary direction to the drains, for all kind of ploughs, more or less leave a serrated surface underneath the soil, the worst ploughmen leaving the deepest marks. The water percolating through the surface soil will flow along these marks, or ridg-lets, and consequently the drains should be at an angle, to receive, as quickly as possible, the water flowing from them. Some writers say, the drain and subsoil-furrow ought to cross at right angles, but I cannot conceive this is absolutely necessary, for an acute angle will catch the furrow equally well.

It follows, from what has been last stated, if a field is *furrow-drained*, the subsoil-plough should be used in the contrary direction, *across* the ridges; but here arises the difficulty on the soils I have described, and the reason why the subsoil-plough is thrown aside as a useless implement. From the necessary length of the plough-share, and the implement itself, no man can hold it to an equal depth over the tops of the ridges and through the furrows, for it will draw in too deep in the one case, and too light in the other, and it will be given up in despair. They may then probably subsoil a little in the same direction as the drains, as an experiment, and finding very little or no benefit to the succeeding crop, abandon the system altogether as unsuitable to their soil.

The method I adopt on heavy land then, is this:—Carry main drains, where necessary, up the furrows in the lowest parts of the field; from these, mark off transverse drains at two perches or eleven yards

distance from each other, branching right and left; the inclination given to the transverse drains must depend on the rise or fall of the surface, so that the water may flow freely into the mains. If the transverse drains are of considerable length, it may be necessary to put a main up two adjoining furrows, the one to receive the small drains from the right, the other from the left. If the field have different levels and inequalities of surface, the main drains must cross some of the ridges to get into the hollows, but having reached them, must still be carried in the direction of the furrows with the small drains crossing the ridges at the distances stated before. To prevent the water flowing down the furrows (in hasty showers) from running over the transverse drains, by becoming puddled or hard, I put into each furrow on the upper side of the transverse drain, and opening into it, a drain of one yard in length; this sinks the water immediately, if running ever so rapid or in any quantity.

Having thus drained the field, the subsoil-plough can be used lengthways, and may be held to its proper depth without chafing men or horses, as would be the case, crossing ridges where the work cannot be done properly or effectually. There are also advantages attending this mode of draining on tenacious soils; the drains being across the usual way of the plough, are not so liable to get *puddled up*, as in furrow-draining, where the horses walk on the top of every drain, but in this case step over often without treading on them. Another advantage will be the saving in tiles, as fewer are required to drain an acre transversely, than a drain up every furrow. It will require the drains to be cut deeper in passing through the ridges, but I find an average of two feet a sufficient depth. The expense is as follows:—

	£	s.	d.
*2064 drain-tiles at 40s. per thousand ...	4	2	6
Cutting, laying tiles, and filling in 688 yards at $\frac{1}{4}$ per yard	1	8	8
Total per acre.....	5	11	2

Worcester, February, 1841.

R. S.

GYPSUM.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—An amateur farming correspondent having written to me for information on gypsum, as I have never made use of any, I should be obliged to any of the readers of your paper who have, to state, through its medium, for the benefit of my correspondent and for the public, the nature of the soil he applied it to, for what crops, the quantity per acre, the effects produced, its cost, and where it can be purchased.

The chief information I have ever obtained on gypsum, was from a German Baron,—an occupier of an immense tract of land in his country, who did me the honour of inspecting my farm two or three years ago; he informed me that he could not possibly get clover without it; I think, therefore, that its best effects in this country may probably be produced in the growth of clover.

I remain, yours, &c.,

Thorpelands, Jan. 22.

C. HILLYARD.

* The drain-tiles used are tubes. Arch-tiles, with soles, would be 50s. per thousand here, not making a superior drain to the other.

GLOSTER FARMERS' CLUB.

ESTABLISHED, FEBRUARY, 1840.

FIRST ANNUAL REPORT.

In presenting this, their first annual report, your committee cannot but notice with pleasure the spirit of improvement that has lately sprung up, and is now spreading through the length and breadth of the land. A few short years ago, the establishment of a farmers' club—an agricultural debating society—would have been considered impossible: the farmers in one neighbourhood were but little aware of the systems of husbandry practised in another, and each supposing his own plan to be the best, they were contented to remain in comparative ignorance. But now the case is altered, the agriculturists of England are rising from their lethargy, farmers' clubs are springing up in every direction, and the effect produced by the free interchange of opinions, is visible in the improved and still improving practice of the surrounding districts.

The Gloucester club was established in February last, and at its first meeting between thirty and forty members were enrolled: it now numbers *one hundred and thirty*, with every prospect of a continued accession to its list; and this, notwithstanding the deep-rooted prejudice that unfortunately prevails in this county against the establishment of such societies.

Your committee would here express their thanks to the few landed proprietors who have patronised them hitherto, and their earnest hope that they may be more generally supported by them during the coming year.

Thinking that it would be a very great accommodation to the members if there were a room in Gloucester open to them on market days, where the books might be kept, and where they might find the *Mark Lane Express* and such other agricultural periodicals as might be taken in, your committee have applied to the trustees of the savings bank for the use of their rooms, and they are happy to add that their request has been acceded to in the most handsome manner. The advantages of this arrangement will be great and the expense trifling.

Finding that considerable inconvenience has arisen, and much time has been lost in fixing upon subjects for discussion at each monthly meeting, a list of subjects has been drawn up for the whole of the ensuing year; it is, however, open to a majority of the members present at any meeting to substitute any other subject that may seem more suitable to the circumstances of the time.

As the funds of the club are not sufficient to afford prizes for the best samples of roots and seeds, your committee strongly recommend that sweepstakes shall be extensively entered into among the members to be decided at the next annual meeting: they would, however, advise that the stakes should be as low as possible, in order that none of the competitors may lose to any considerable amount.

As one main object in the establishment of farmers' clubs is the general diffusion of agricultural information, your committee cannot but think it would be very desirable to encourage an extensive correspondence with similar clubs elsewhere; they hope that this will not be neglected during the coming year.

At one of your monthly meetings, an addition was unanimously made to your rules, by which

the son of any member, being under twenty-one years of age, will be allowed to attend and hear all future discussions. This will materially extend the usefulness of the club.

FIRST MEETING, MARCH 14th.

The following subject was discussed—"The best method of preparing the land and depositing the seed for a crop of barley."

Introduced by Mr. S—, who, after premising that it was impossible to lay down any fixed system, which could be followed without variation in all seasons, proceeded to treat the subject.

First, with reference to heavy or clay soils;

Secondly, as regarded light or turnip soils.

With respect to the first description of land, there were four preparations, all of which he had seen tried with success. The first was a naked summer fallow; he was aware that this was more usually followed by wheat, but where there was a good understanding between landlord and tenant, he thought that in most cases it would pay to substitute barley for the wheat.

Secondly, where the land was in good condition, and therefore would seldom require summer fallows, a crop of vetches, for which the ground had been previously manured, or which had been fed off by sheep, would form a good preparation for the barley crop. As the vetches would all be eaten off by the end of August at the latest, ample time would remain for ridging up the field for the winter.

Thirdly, the land might be manured for beans, and after the removal of the crop it might be breast-ploughed, previous to landing up.

The fourth method was one which he had only seen tried by one person, and which was in direct opposition to the usual practice, but on the farm alluded to, it had certainly answered exceedingly well. Turnips were grown as if on a light soil, they were fed off by sheep, even though the ground was in such a state as to be completely puddled by the feet of the animals, which were not removed until the middle or end of March. The land, instead of being ploughed, was then skimmed over, for which operation five horses harnessed at length were required; it was afterwards scuffed in a contrary direction to the depth of about four inches, and upon this the seed was sown broadcast. By this system very large crops had been obtained. (It was observed by another member, that the farm alluded to had been thoroughly drained.)

In the three first methods of preparation, the ground should of course be ridged up into lands sufficiently round to carry off the water, in which state it should lie until the spring, when it ought on no account to be touched, until the period arrived for sowing the barley. The land should then be scuffed once, and, if requisite, twice: the personal inspection of the farmer himself was absolutely necessary to decide whether this last scuffing was wanted, or whether it could be dispensed with. It would be most pernicious to plough the land at this season of the year,—the fine mould obtained by the action of a winter's frost would be lost, and the field would be covered with clods as hard as brick-bats. One, or at most two, scuffings would raise as much mould as would be necessary, and would perfectly prepare the ground for the reception of the seed.

As to the method of depositing the seed, he had tried drilling and sowing, and his decided opinion was in favour of the latter. With most other crops he preferred the drill, but in the case of

barley he found that it crowded the seed so closely together as to be injurious to the plant. If, however, the soil was very fine, and the seed, if sown, could not be effectually covered, recourse must be had to the drill, but in that case he should cross the field with a pair of very heavy harrows, so as to separate the seed as much as possible.

As regarded *light land*, there could be no doubt that the best crops of barley were obtained after turnips, for which the land had been manured, and which were fed off by sheep. On this description of soil, he thought it was a good practice to give a very light ploughing in the spring, for the sake of covering the dung left by the sheep. A scuffer would then pulverize the land sufficiently to receive the seed, which he would sow broadcast for the reason stated above.

Mr. K— (the member alluded to by Mr. S—, as preparing his land according to the fourth method described) confirmed what had been said as to his mode of cultivation; the land he occupied was of a very binding nature, although full of stones and gravel; he had tried ploughing and skimming side by side, and had found a very great difference in the crop in favour of the latter; he had also tried drilling and sowing broadcast in the same way, and the advantage of the latter was evident. He had pursued this system now for several years, and had found his crops average considerably more than before. He had used the subsoil plough on about two acres of his land, but did not find that the barley succeeded better there than elsewhere.

Mr. J. S— gave an account of an experiment which he had tried to determine whether deep or light ploughing was most advantageous for this crop. For this purpose he had ploughed an acre five inches deep, and another acre an inch and a half deep, in a field the soil of which was sandy, and where a fair proportion of Swedes had been consumed by sheep: no difference was perceptible in the succeeding crop. He was a decided advocate for drilling, and always made use of the Suffolk drill. He was also in favour of early sowing, and had once grown a very large crop on forty acres of land, the seed for which had been drilled by the fourth of March, although a heavy fall of snow completely hid the blade for nearly a fortnight.

Several members having expressed their opinion on the various plans proposed, it seemed to be the opinion of a majority of the club, that heavy land intended to be sown with barley should be ridged up previous to winter, that it should lie in that state until the spring weather permitted the use of the scuffer, which would generally happen some time in March, and that that tool would be in almost every case sufficient to pulverize the land for the reception of the seed.

That on light soils, a crop of turnips fed off by sheep would form the best preparation for barley; a light ploughing for the sake of turning in the manure would be useful, after which the scuffer would be used till the requisite depth of good mould could be obtained.

Further experiments are necessary to prove the comparative advantages of the drill and broadcast systems as regards barley.

SECOND MEETING, APRIL 11TH.

Subject, "*The cultivation of Swedes and Turnips.*"

Mr. J. S— said that in the four-course system, turnips succeeded a crop of wheat. Immediately

after harvest, the land should be breast-ploughed and harrowed, and after lying some time in order to encourage the vegetation of weeds and to clear the surface, it should be ploughed to the depth of nine inches, and left through the winter. As soon as barley-sowing was concluded, the furrows should be reversed, and the ground perfectly cleaned and pulverized by means of scuffing, harrowing, and rolling. About a fortnight before the time of planting, the field should once more be ploughed nine inches deep, and again harrowed and rolled. These operations would prepare the land for the manure, upon the nature and quality of which the success of the crop would mainly depend. Farm-yard manure, being always at hand, is that upon which the greatest reliance is to be placed. In the course of the winter, it should be carted out into the field, and placed in mixens: turning it once about a month before spreading, will generally fit it for use. The quantity must of course vary with circumstances, but about twenty cart-loads for Swedes, and twelve or fourteen for turnips, may be about an average.

Lime is also useful in bringing into action any dung or vegetable matter in the soil: one hundred and forty bushels per acre, unslaked, would be a good quantity. Bones he had tried three years with success; he had generally used three quarters per acre, but this year he intended to use two only. The benefit of this manure extended to succeeding crops, which were invariably good. He had drilled root and ashes with the seed, and found them useful. Soaper's ashes had no visible effect upon the crop.

He thought the early part of June was the fittest time for sowing Swedes. The purple-top was the most valuable kind, both on account of its weight and quality. Of turnips, the white tankard, and the red and green Norfolk, were best adapted for early keep, while the yellow Scotch and the flybird would be most useful in the winter. The sowing of all these varieties should be completed by July 20th.*

As to the method of planting, he preferred ridges, as they would be more likely to secure a regular crop, and the land might be more easily cleaned. They should be struck out with a double mould-board plough, at intervals of from twenty to twenty-four inches, so as to admit the wheels of a cart. If the field is level, they may be struck out in the same direction that the land was ploughed, but, if otherwise, across; because in heavy rains, the ground is much more washed in ridges than when level. As soon as the ridges are formed the manure should be spread equally in the hollows, and covered with the double mould-board plough; by this means, the manure would be deposited under the centre of each ridge, so that the plant will receive the whole benefit of it. The drill should follow immediately, attached to a light roller, sufficiently wide to cover the seed in the ridge just drilled, and to level the ridge which is being drilled. Two pounds of seed per acre is sufficient, and should be deposited about half an inch deep. The ridge system would be found equally well adapted for artificial as for farm-yard manure. As soon as the plants are well up, they should be bunched with an eight-inch hoe, and afterwards carefully singled. The horse-hoe should be used from time to time, so as to keep the land perfectly clean.

Mr. S— preferred planting turnips upon the plain ground; he had tried it for many years, and

* It is as well to state here, that Mr. J. S—'s farm is almost entirely composed of a sandy soil.

with the exception of last year (1839), had never had occasion to repent. He drilled his Swedes on ridges, twenty-seven inches apart upon a heavy soil, and about eighteen on light land. Intervals of a foot were sufficient for turnips. He thought that great loss was sustained by making use of manure in too rotten a state; it should lie longer for Swedes than for turnips, but he never turned it more than once after hauling it from the yard.

THIRD MEETING, MAY 16TH.

Subject, "*The best rotation of crops for clay soils.*"

Mr. J. B——, in introducing this subject, said that it was a very remarkable fact, that while the lighter soils throughout the country had of late years been brought into a high state of cultivation, the heavy lands or clays had been comparatively neglected, and were now farmed much as they had been for centuries past. The introduction of the turnip husbandry was the principal cause of this, and it must be admitted, that the cultivation of this root to perfection, as well as the use of two-horse ploughs, were quite impracticable on a clay soil; but, on the other hand, there were green crops, which it was eminently calculated to produce, such as vetches, clover, and beans, and by means of these, much good might be effected. If we observe the practice of turnip growers, we find that they apply a large quantity of manure, and use every exertion to secure a full crop of that valuable root, well knowing that the larger the crop, the more is returned to the soil in consuming it. The clay land farmer, on the contrary, applies the whole of his manure to exhausting crops, and indeed in some instances only sows clover or vetches when the land has been completely worn out by a repetition of the former; thus the green crops which should be fertilizers of the soil, become worse than useless, while, if the same pains were taken to secure a large crop of them which are bestowed upon the turnips, it is reasonable to suppose that equally beneficial effects would follow. It would ultimately effect a radical improvement in the texture of this stubborn soil, by keeping up a supply of vegetable matter in it, thus preventing cohesion of its parts, and rendering cultivation comparatively easy.

A rotation then, however varied in other respects, should always be so contrived, that a white straw should follow a green crop, the land having been previously manured for the latter. Landlords might very materially assist their tenants, if they would thoroughly drain their farms, divide the arable land by straight fences into fields suitable to the size of the farm, and, lastly, if they would grant long leases. To this, and this alone, is to be ascribed the superiority of Scotch and Norfolk agriculture.

The following course of crops is recommended, and will be found consistent with the opinions expressed above:—

First year—Fallow manured. Second year—Wheat. Third year—Vetches manured and sheep fed. Fourth year—Wheat. Fifth year—Beans heavily manured with long dung. Sixth year—Oats. Seventh year—Clover, top-dressed with Soaper's ashes, gypsum, &c. Eighth year—Wheat. Ninth year—Beans manured with long dung. Tenth year—Wheat.

Thus, on one hundred acres of land, there would be every year forty acres of wheat, twenty of beans, ten of oats, ten of clover, ten of vetches, and ten of fallow.

On examining the above course, it will be ob-

served, that the preparation for or planting of one crop will not interfere with another, and so that the labour throughout the year will fall in regularly. As a forced tilth is quite impracticable on this soil, it will be necessary to keep a good strength of young cart-horses, so as to enable us to take advantage of every favourable opportunity that the weather may afford for its cultivation. If the horses are kept entirely upon the arable land, that is upon oats, clover, and vetches, the expense will be counterbalanced by the sale of a good cart-horse now and then, by the additional quantity of manure they return if well kept, and, more than all, by being able to do that in a week, which, had it taken nine days, might never have been accomplished. It is an excellent maxim in farming, that anything to be done to advantage must be well done.

Mr. N——stated his course to be as follows:—1, Fallow or vetches manured; 2, Wheat; 3, Clover; 4, Wheat; 5, Beans manured; 6, Oats. He always turned up his land in the autumn, in order that it might receive the full benefit of the winter's frost; and he considered that in the generality of seasons, it is wrong to plough the land intended for wheat, as that plant thrives best upon a firm bottom. In this opinion Mr. C. H——, with some others, perfectly concurred; it was his practice to breast-plough and scuffle two inches deep before planting his wheat, but scarcely ever to plough; he always found that by following this system, he had fewer weeds the next year, that his crops were superior, and that it is very rarely indeed that the season was such as to prevent the use of the scuffler, even on the stiffest clay. His rotation was—1, Fallow, if the land required it; 2, Oats; 3, Clover; 4, Wheat; 5, Beans; 6, Wheat.

On the other hand, it was contended by Mr. L——, and others, that in the generality of seasons, it would not be possible to use a skim, and that it was better to plough the land lightly at once. Mr. L——considered summer fallows absolutely necessary to keep the land in anything like condition—vetches could not be got off in sufficient time to be a good substitute. At the same time, he thought it a bad practice to sow wheat on a fallow, as it was very apt to fail in the spring. He adopted a five years' course, viz.,—1, Fallow manured; 2, Oats; 3, Clover; 4, Wheat; 5, Beans.

Mr. C. H——, and others, thought fallows unnecessary to anything like the extent proposed by Mr. L——. There was land about Robin's Wood hill which was regularly fallowed once in three years, and the average yield of wheat was fifteen bushels per acre.

Mr. B——considered it very desirable to raise some root or other green crop in sufficient quantity to maintain cattle in the winter; as by this means a great deal of dung would be raised to go upon the land; but it was thought by other members, that such crops would not pay upon a clay soil; they were very precarious and expensive, and it was difficult to get them off without doing considerable injury to the land by treading it in wet weather. If the same money were laid out in the purchase of oil-cake, or other artificial food, an equal quantity of superior manure would be raised without this inconvenience.

FOURTH MEETING, JUNE 13TH.

Subject, "*Best rotation of crops for red lands and adhesive gravels.*"

Mr. W. H——stated that his farm was composed of red land on a marl bottom: it had been

well drained with surface-drains dug three feet deep, and filled with stones to within nine inches of the surface. The course of crops which he had adopted since the year 1814, was as follows:—

First year—Swedes, turnips, or mangold wurtzel, well limed and dunged, and cultivated on the ridge system. Second year—Barley sown broadcast. Third year—Clover mown and afterwards seeded. Fourth year—Wheat drilled on a stale furrow. Fifth year—Vetches fed off, and the land then cleaned and dunged. Sixth year—Wheat drilled and sown with mixed seeds. Seventh year—Seeds grazed till July, the land then fallowed and limed. Eighth year—Wheat drilled. Ninth year—Beans set, well manured with long dung. Tenth year—Wheat.

Thus four-tenths of the farm were always in wheat, and the whole of the land was manured three times with farm-yard manure, and twice with lime, during the course. He did not find that his crops of wheat fell off at all, and they were in general quite as good as those grown in the neighbourhood.

Mr. W. W—— thought that wheat was taken too often according to the above rotation, and suggested that it would be an improvement if oats or barley were substituted in the sixth year, as the seeds would probably succeed better.

Mr. L——, with some others, disapproved of applying dung and lime at the same time: he thought that the one would injure the other, and that though the effect might be more apparent at the time, it would not be so permanent.

FIFTH MEETING, JULY 11TH.

Subject, "*The best breed of cattle for dairy purposes, and the most profitable management of them.*"

Mr. L—— said that the various circumstances of different districts rendered it quite impossible to fix upon any one breed of cattle, and say that it ought to be universally adopted for dairy purposes: one would answer best in one situation, and another in another; but there were two breeds which, as he considered, were superior to all others, viz., the Gloucestershires and the Short-horns. It is much to be regretted that it is now so difficult to meet with a pure specimen of the former. They were originally of Welch origin, much improved by admixture with other breeds: they are small in the bone, and light in the carcase, seldom weighing more than nine or ten scores per quarter when fat: they are a hardy useful breed, well suited to the climate, and answering the purpose both of the dairyman and grazier.

The short-horns, combining as they do, fine frames, showy colours, and the most exquisite quality, present themselves to our notice under circumstances of peculiar interest. From the earliest periods, the counties of Durham and York have been celebrated as possessing a breed of cattle surpassing all others in the quality and quantity of their milk. The first improvers, in their anxiety to obtain early maturity and aptitude to fatten, lost sight of this important point: in consequence of which, the cattle were beginning to lose their milking properties; and hence arose the general opinion, that a disposition to lay on flesh could seldom exist in a good milker. However, some of the later and more intelligent breeders having crossed an improved Short-horn bull with some of the old Yorkshires, have at length obtained a race of cattle little inferior to the new breed in their grazing properties, and at the same time retaining, with

little diminution, the value of the original breed for the dairy. Thus we have now a breed of milking short-horns surpassing every variety of cattle in the kingdom, and entitled to be considered the best breed for dairy purposes.

With a view to the dairy only, a cow may be milked with profit for ten or twelve years, but this cannot be done without considerably lessening her value as grazing stock; perhaps, therefore, it would be more profitable, on the whole, to turn them off at the end of about five years.

If well kept, a cow may safely be milked forty-four weeks in the year; but if, as is not uncommon in Gloucestershire, they are wintered chiefly on straw, it will be necessary to dry them at least three months before calving, the last six weeks of which they should be kept on good hay. This practice is by no means to be recommended, as the cattle become poor, and do not milk so well the following season.

Helpers ought never to be put to the bull under two years' old, as it very much impedes their growth, and in many cases makes them prove out of season the following year. The beginning of May is the most advantageous time for them to come in, whether for the dairy or market.

Mr. J. B—— thought that by careful breeding, any race of cattle might become good milkers; and, indeed, that any other desirable quality might be obtained in the same way. The Dishley sheep were originally alike, and continued so as long as they remained under Bakewell's management; but no sooner did they get into the hands of different breeders, than their forms altered in various ways, according to the plans of their owners, and they are now quite different from the old stock. The short-horns were very good milkers, but they were delicate, and required expensive buildings: when put upon good keep, they recover condition in a short time.

On the other hand, it was contended that the short-horns did not require more care than other breeds. They were the common stock of the vale of Berkeley, and the buildings and other conveniences of that district were by no means good; a great deal of the land was also very wet, and required draining. They united the qualities of milking and feeding more than any other race of cattle.

The long-horns and Herefords had also their advocates, while it was thought by many members that much more depended upon the *breeding* than upon the *breed*, that is to say, that almost any race of cattle would become good milkers, if they were managed through a series of generations with that object in view.

SIXTH MEETING, AUG. 5TH.

Subject, "*The best breed and management of cart-horses.*"

Mr. G. S—— thought that the cart-horses of Gloucestershire, if properly selected and carefully bred, would be quite as good as those used in any other part of England: the land was for the most part heavy, and therefore a heavy description of horse was necessary. On light soils, activity and a quick step were desirable, but in ploughing a stiff clay, the weight which a horse could throw into the collar, was quite as important as the muscular power he was capable of exerting. The main defect of Gloucestershire breeding was that sufficient care was not taken in the selection of brood mares: it seemed to be the common idea, that if from disease or any other cause, a mare

was unfitted for farm labour, this was the most profitable use to which she could be applied; under such management it was no wonder that the breed did not improve.

It was the common, and upon the whole the most profitable, practice to have the foals dropped in May, as that was the time when the labour of the mare could best be spared; but if the object was to obtain the best horse, August would be a better period of the year: the foal would then be allowed to run with the mother all the winter, and it would be weaned in the spring when grass was becoming plenty.

Cart-horses should be kept in yards, winter and summer, as under this management they were more free from disease than when confined in warm stables. Mr. G. S——'s team was composed chiefly of young horses, as he found it most profitable to sell them out as they became fit for the market: he kept them through the winter upon hay, with brewers' grains, but a change of food might be useful to keep them in better health, and it would be economical to have the hay cut into chaff.

Mr. B—— considered the Gloucestershire race of horses to be the worst of all the breeds with which he was acquainted. The Clevelands were equal to any kind of farm work, and their superior activity enabled them to go through it in a much shorter time. He had more than once proved this by experiment. Horses should be fed according to their work, and should always be kept in good condition: two quarters of oats, and fourteen pounds of hay per day, together with a little straw, cut into chaff, would be amply sufficient for this purpose,—this feeding would cost at average prices about five shillings and sixpence per week. A sack of potatoes a-week, with no hay or corn, but with a moderate allowance of straw cut into chaff, had also been found a cheap and good food. Great care was necessary not to allow the potatoes to remain longer than a day after they were steamed, as fermentation would come on rapidly, and in that case they became very unwholesome, for this reason they can only be used during the winter months. It would effect a great saving in the consumption of the hay, if it were regularly weighed out to the carters, and always cut into chaff. Rock salt should constantly be kept in the mangers, it was a preservative against many diseases. Each horse should be bled, and have two doses of physic, when taken up from grass, or if constantly kept in the stable, towards the end of September.

Mr. S—— said that he allowed a bushel of split beans and one hundred weight of bran among six horses per week.

SEVENTH MEETING, SEPTEMBER 5TH.

Subject, "*The most profitable management of stock in winter on lands unsuitable to turnips.*"

In consequence of the harvest, the attendance of members was very small, and the discussion short.

Mr. B—— said that the subject might be divided into two parts, and considered, first, as regarded the stock itself; and, secondly, with a view to the manure.

The better cattle were kept during the winter the more valuable they would prove in the following spring, and for this reason he thought it would pay to give them much better food than was generally afforded them; where it was possible to keep them upon seed hay without straw, it

would be found the most profitable practice; he had heard of oil-cake, linseed jelly, and steamed hay with a few beans, being given to store cattle, but never having tried these experiments, he was not able to say whether the expense of their food would be repaid by their improved condition. They should be tied up in open sheds, which would sufficiently protect them from the inclemencies of the weather, and each beast would receive its due proportion of food, and no more.

Calves might be kept in yards with sheds. In Essex, where large numbers are annually fed for the London market, they are let out morning and evening to suck the mothers, and pieces of salt and chalk are constantly kept within their reach—this latter custom was especially deserving of imitation.

Horses should, if possible, be kept in open yards with sheds; but where they are necessarily confined to stables, the greatest possible attention should be paid to ventilation.

Store-sheep and breeding ewes might be allowed to run in dry pastures during the winter; some clover or other hay should be given them daily. The practice of keeping lambs and feeding sheep in yards, and giving them corn, has been proved to be profitable; the only objection to the system is their liability to the foot-rot.

As regarded the manure, its strength and quality, as well as quantity, would depend very much upon the method of keeping the cattle; the better the food and the higher their condition, the stronger would the manure be. The common method of littering down a whole yard with a thick coat of straw, and turning the beasts loose into it, was a very wasteful one; the quantity of rain which would be absorbed by the straw would render the manure weak and unprofitable; whereas, if the cattle were tied up in stalls, the dung might be carefully removed to a pit, into which the urine might also be conducted, while much of the rain water might be carried away by spouts round the building, and thus all the valuable part of the manure would be preserved; by this method also, earth, vegetable substances &c. might be mixed with the heap.

Mr. F—— said that a thick layer of sand or earth spread over a yard under the straw, before the cattle were turned in, would be very useful in absorbing the moisture; whereas, if earth were mixed with the dung, the fermentation would be checked to an injurious extent. He did not like the practice of tying up store cattle—they did not thrive so well as when loose.

EIGHTH MEETING, OCTOBER 10TH.

Subject. "*The cultivation of wheat.*"

Mr. A. B—— stated that he generally planted his wheat either on a clover lay or a bean stubble. The first crop of clover was mown early in June, and made into hay; the second was generally ready to fold the sheep upon about the 10th or 15th of July; they were mowed morning and evening, so that the whole field might be manured as equally as possible. This crop was generally consumed by the middle or end of August, when the part where they began to be folded was generally ready to begin upon again, which was done precisely as before. As fast as this last crop was fed off, the land was ploughed, always using a skim or flay to the plough. It was material that a clover lay should be made as firm as possible, and for this purpose he had occasionally used the harrows ten times over the same ground; when the land was not too wet, a heavy cast-iron roller might be used with good effect.

With the bean stubble quite a different method was adopted, not using a common plough at all, but a skim plough, which does not turn the furrows, but passing under at any required depth, and taking about two feet eight inches of ground, cuts the weeds off effectually. By means of drags and harrows, all the filth is then drawn into heaps, and immediately burnt by women and children. He was aware that this could not be done where the land was full of couch, but this, he contended, ought not to be there; the soil was incapable of producing two good crops at once, and a man that suffers his farm to be overgrown with weeds, is neither doing his duty to himself or his country. There are also seasons—such as the last (1839)—when the plan cannot be adopted; but at such times the stiffer lands ought not to be planted with wheat in the autumn, as a failure would almost inevitably follow. It would be far better to plough the ground before the winter, and let it lie till the spring, when a more favourable opportunity of depositing the seed might be expected.

On a clay soil, a crop of vetches fed off by sheep in time to fallow the land afterwards, forms much the best preparation for wheat; it might be said that a sufficient number of sheep would not be kept on such a farm, but the neighbouring flocks should be borrowed rather than that the vetches should get too old before they are fed off. Wheat should always be deposited in the ground by means of a drill, and he should prefer the Suffolk drill, as it dropped the seed most equally, and at the most uniform depth; the exact quantity to be sown might also be adjusted, which was not the case with any other drill. The distance between the rows should be eight inches, which leaves ample room for the use of the hoe, and from six to eight pecks per acre, according to the condition of the land and the time of sowing, was sufficient. The seed-time was from the middle of October to the middle of November. In order to prevent the smut, he always obtained the seed from the chalk, and prepared it with vitriol, before sowing.

Mr. W. W— objected to the Suffolk drill for wheat: it crowded the seed too much in the rows, and by means of a table which he had drawn up, (and which will be found below) the required quantity of seed might be deposited with the common three-furrow drill with equal accuracy.

Mr. A— gave an account of some experiments that had been tried by a relation of his upon a dry soil with a marl bottom. To ascertain the best time of sowing, two lands were selected and drilled, one October 29th, and the other November 20th, and treated alike in other respects; the re-

sult was in favour of the later sown to the extent of three or four bushels per acre. Other experiments, made with great care and accuracy, tended to prove that three bushels per acre was the best quantity of seed, and that the produce of red wheat would, in the average of seasons, exceed that of white by about two or three bushels per acre.

Mr. L— agreed in thinking that November was the best month for planting wheat; he was in the habit of ploughing all the land intended for that crop, and drilling the seed as soon as the ground would work. Five to six pecks, in rows eight inches apart, he thought amply sufficient.

As there was a great difference of opinion as to whether the seed should be sown on a fresh or stale furrow, and also as to the depth at which it should be deposited, Mr. L—, at the request of the club, undertook to try an experiment for the purpose of throwing light upon the first point, and to report the result.

Mr. W— read a paper advocating the use of the hoe in planting wheat on clay soils, which, as he contended, had the following advantages:—

First—The seed is equally deposited at the required depth. Secondly—The treading of the land by horses is avoided. Thirdly—A smaller quantity of seed is sufficient. Fourthly—The wider intervals (from nine to twelve inches) admits the earlier and more frequent use of the hoe.

The quantity of seed he was in the habit of using varied from five pecks to two bushels, according to circumstances. The expense was about six shillings per acre, besides drink.

It was suggested that the distance between the rows was a material objection to the system, as it encouraged late tillering, and thus injured the quality of the produce; but Mr. W— asserted that so far from this being the case, he found that the samples of corn grown in this way were very superior to those obtained either from drilled or sown wheat.

After this point had been discussed at some length, Mr. W— consented to try an experiment this year, to ascertain, as far as possible, the COMPARATIVE MERITS OF THE DRILL AND THE HOE.

Detailed particulars of an experiment made by Mr. Wm. Woodward, of Bredon's Norton, near Tewkesbury, to ascertain the difference in produce of nine varieties of wheat, upon nine half-acres of land, planted the 2nd and 3rd of December, 1839, and cut between the 7th and 15th of August, 1840. A bushel and a half of seed was drilled at six inches apart on each of the following half-acres.

No. of each Lot.	Names of Varieties Drilled.	Produce of Grain from each Half-acre.			Produce of Straw from each Half-acre.					
		Best Wheat.	Wheat per Bush.	Tail end.	Boltings.	Short Straw.	Total.			
		bus. pec.	lbs.	pec.	cwt. qr. lb.	cwt. qr. lb.	cwt. qr. lb.			
1	Brown's White Prolific.	24 1½	62	2	14 2 0	6 1 0	20 3 0			
2	Brown's Red Prolific ..	23 1	60½	5	13 3 12	6 0 8	19 3 20			
3	Scotch White	21 2	61½	2	14 0 0	6 3 4	20 3 4			
4	Taunton White	21 2	62	3	14 1 16	7 0 10	21 1 26			
5	Sicilian White	20 0½	62½	0½	12 1 0	6 1 2	18 2 12			
6	Whittington White	24 0	59	4	17 0 16	7 2 0	24 2 16			
7	Old Herts White	23 0	61	3	14 1 12	6 3 24	21 1 8			
8	Golden Drop Red	24 2	61½	3	10 3 17	7 1 14	18 1 3			
9	Creeping Wheat Red ..	23 0½	62½	1½	13 3 12	6 2 22	20 2 6			

N.B. The above were planted on a gravelly loan (clover lay) in a high state of cultivation. The lots were measured and staked out across the field without taking in the outside lands, or headlands. Neither lot was affected by trees or hedges. The land varied but little in quality. Nos. 8 and 9 were on the part not *quite so good*; and in No. 5 having a drain burst, the wet destroyed a patch which may have produced nearly one bushel. The crop was all bagged or cut close to the ground, but the exact length of straw was not taken. No. 6 was the longest; Nos. 1, 2, 3, 5, and 7, the shortest. The samples were not fine, owing to an attack by the wheat-fly of the yellow maggot (or red-gum) which also lessened the produce. Some varieties were attacked more than others. No. 5 was the finest sample, and No. 6 the worst. Nos. 1, 2, 6, 7, and 8, were the most, and Nos. 3, 4, 5, and 9, the least attacked by the wheat-fly. I consider Nos. 1 and 8 the most desirable and productive on soils of *best quality*, in a good state of cultivation. Nos. 3 and 5 producing the best quality of flour, and calculated for *gravelly and sandy soils*; and Nos. 6 and 9 the best calculated for *inferior or poor land*. No. 2 is very produc-

tive when the season suits it, the flour inferior. Nos. 4 and 7 have much degenerated, now nearly red, from having been grown without change of seed for so many years in the neighbourhood. Nos. 1, 3, and 6, are well calculated for sowing early in the spring. There were but a few days difference in the time of ripening, the less on account of the dryness of the season. No. 7 the earliest, No. 3 next, Nos. 1, 2, 4, and 5, next, No. 6 a little later, and 8 and 9 the latest and least ripe when cut.

WM. WOODWARD.

Memorandum of the produce of six varieties of wheat grown upon one acre of land by Mr. Francis Woodward, on his farm at Bricklehampton, in the year 1839.

Cobham, one acre.....	42 Bushels
Brown's White Chevalier.....	44 ..
Yellow Chevalier, or White Straw	
Red.....	36 ..
Whittington White.....	38½ ..
Hertfordshire White.....	39 ..
Golden Drop.....	40 ..

The above were grown on a field after peas, which I consider a bad preparation for wheat.

Table shewing the distance each foot of a Drill Plough should go to deliver a half-pint of seed.

Distance apart in each row.	Quantity of seed per acre required.	Each Hopper to deliver half a pint of seed in going.	Distance apart in each row.	Quantity of seed per acre required.	Each Hopper to deliver half a pint of seed in going.
Inches.	Pecks.	Yards.	Inches.	Pecks.	Yards.
6	8	113½	8½	16	42½
6	10	90½	8½	20	34
6	12	75½	8½	24	28½
6	14	64½	9	8	75½
6	16	56½	9	10	60½
6	20	45½	9	12	50½
6	24	37½	9	14	43½
7	8	97½	9	16	37½
7	10	77½	9	20	30½
7	12	64½	9	24	25½
7	14	55½	10	8	68
7	16	48½	10	10	54½
7	20	38½	10	12	45½
7	24	32½	10	14	39
8	8	85	10	16	34
8	10	68	10	20	27½
8	12	56½	10	24	22½
8	14	48½			

The above table was calculated by me when the three-furrow drills were generally used, in order that my men when drilling may take a proper half-pint measure into the field, and by putting that quantity into one hopper, and measuring or stepping the number of yards I had directed them, according to the seed to be planted, ascertain thereby if they were doing their work correctly. In drilling wheat if it is wished to put eight pecks upon an acre, and the liming, or pickling increases the eight to ten pecks, the drill must of course be set to drill the latter quantity.

WM. WOODWARD.

NINTH MEETING, NOVEMBER 7TH.

Subject, "The use of Nitrate of Soda as a manure."

Mr. H—, after having made some preliminary observations on the advantages to be derived from

agricultural experiments when carefully tried on a moderate scale, as they afforded the farmer a mean of satisfying himself as to the beneficial results of any new manure or mode of cultivation before he expended much of his capital upon it, proceeded to give a detail of certain experiments which he had tried this year, to ascertain the effect of nitrate of soda as a manure for wheat.

The soil is what is commonly termed a stone-brash upon the upper Oolite formation, containing much alkali, and therefore at first sight unlikely to suit this manure, which is also an alkali. The land was in good condition and quite clean; it had been well manured in 1838, and had produced good crop of Swedes, one fourth of which were fed off by sheep on the land. In 1839, spring vetches had been sown, and about one-third of them were also sheep-fed. It was ploughed and prepared for wheat the end of September and

early part of October, and on the 26th of that month, two pounds of white Sicilian wheat per acre were drilled in. The nitrate at the rate of one cwt. per acre was sown on the whole field, with the exception of two square pieces, which were left for comparison. The weather at this time was very dry, and no difference in the crop was perceptible till after some moderate rain, which fell about the 8th of May, when the nitrated part of the field took the lead, becoming much better in the straw, and of a more luxuriant green colour, which difference continued during the future progress of the crop; it was however attacked in every part by a disease called red-rust, in consequence of which, the leaves became marked with blotches of a dingy colour.

All parts of the field came into ear alike about June 8th, and into blossom about July 2nd. As the crop advanced to maturity, the difference in

colour became less remarkable, and at last disappeared. About July 20th, the nitrated part, which still took the lead in strength, became mildewed both in straw and ear, nor did it afterwards ripen so equally as the rest. As however it is well known that the most luxuriant crops are the most subject to this disease, it cannot in this case be attributed to the nitrate. The crop was reaped August 25th, and soon after thrashed out, when it was found that the nitrated wheat produced an inferior sample weighing sixty pounds per bushel, and valued at eight shillings, while the unmanured wheat weighed sixty-one pounds, and was valued at eight shillings and threepence. The quantity of tail corn on the nitrated part was twice as much as that on the part that had not been manured; it weighed fifty pounds, and was valued at five shillings per bushel.

Produce.	Measure per acre.									Value per acre.								
	Nitrated.			Without N.			Excess.			Nitrated.			Without.			Excess.		
	B.	P.	PTS.	B.	P.	PTS.	B.	P.	PTS.	£	s.	d.	£	s.	d.	£	s.	d.
Clean Corn.	37	3	4	30	2	11	7	0	9	15	2	6	12	13	0	2	9	6
Fail Corn..	5	5	7	2	3	11	2	3	12	1	9	2	0	14	7	0	14	7
Total Corn.	43	2	11	33	2	6	10	0	5	16	11	8	13	7	7	3	4	1
	T.	C.	QR.	L.B.	T.	C.	QR.	L.B.	T.	C.	QR.	L.B.						
Straw. .	1	11	2	3	1	3	1	21	0	8	0	10	19	14	8	15	14	6
Cost of Nitrate on the ground....																1	3	0
Net Profit																2	17	2

It had been supposed that this manure, although beneficial to the crop to which it was applied, might be only a powerful stimulant, bringing into immediate action the vegetable nutriment already in the soil, and in this case would probably prove permanently injurious to the land. This was possible, but there were no decisive grounds for supposing so, and at all events he had obtained a clear surplus profit of 2l. 17s. 2d., which would go a long way towards restoring the land to its former condition.

He had also tried nitrate upon grass and Swedes, but the experiments were not satisfactory; as far as they went however, they tended to prove that the increased produce was not sufficient to pay the expense of the manure.

It is of the greatest importance, in trying experiments of this kind, to bring every thing to the test of weight and measure, as appearances in the field are frequently deceptive even to the most experienced eye, and thus opinions are formed upon false, or at the least inadequate, grounds. The most trivial circumstances in appearance ought also to be carefully observed, as they may have important effects upon the result of the experiment.

Mr. W. J.—stated that last spring he had a thin piece of wheat, and having selected the two worst acres, he sowed the nitrate upon them, the improvement was visible almost immediately, and the produce exceeded that of the remainder of the field by five or six bushels per acre. The soil was a stiff clay.

Several other members had also tried the nitrate upon various crops, and their experience tended to corroborate all that had been said by the mem-

ber who introduced the subject. It was a very valuable manure for white straw crops, but when applied to green crops the benefit was not sufficiently great to counterbalance the expense.

TENTH MEETING, DECEMBER 5TH.

Subject, "*The best method of making cider.*"

Considerable difficulty was experienced in finding any member who would undertake the introduction of this subject, until, at the eleventh hour, Mr. S—— kindly consented to do so. The discussion, however, was short.

The main points considered by the meeting as essential to the manufacture of good cider, were—

First—A good kind of fruit; the following sorts were recommended:—the Skyrme's Kernel—the Margill—the Ribstone Pippin—the Anselm—and the Duke.

Secondly—That the apples should be perfectly ripe.

Thirdly—That the weather at the time of grinding should be clear and cold.

After grinding, the liquor should be placed in an open hogshead and left to itself, when, if the weather be favourable, it will probably drop fine in a short time, but if this should not be the case, recourse must be had to filtering it through linen bags. This, however, should be avoided, if possible, as the cider is never so good as when it has dropped fine of itself.

Having thus concluded their brief account of the subjects brought under discussion during the past year, your committee now resign into your hands the trust you have reposed in them. They cannot, however, do this without expressing their

earnest wishes for the future welfare of this club ; may it go on and prosper ; may every month add to the number of its members, and may the general improvement visible upon their farms prove to the most prejudiced that its meetings have not been attended in vain.

For the Committee,
LLOYD B. WALROND,
Honorary Secretary.

Immediately after the passing of the above Report, the following resolutions were carried unanimously :—

1st.—That three hundred copies of the report just read be printed for the use of the members and for distribution by the committee.

2nd.—That the secretary be instructed to present a copy of our report to other farmers' clubs, with a request that if they also print a report, they will favour this club with a copy of it in return.

3rd.—That the *Mark Lane Express* be taken in from this time, and that it be laid every week upon the table in the reading room for the use of the members, together with any other agricultural periodical that the committee may think advisable from time to time. And that the committee be empowered to order such books as they shall think fit for the use of the club to an amount not exceeding fifteen pounds.

SALTING AND CURING MEAT.

A new discovery has lately been patented for the "salting and curing of animal substances," which deserves to be made universally known. The process is extremely simple, economical and efficacious. The results are thus stated in a circular from the patentee, Mr. Payne :—

"1. The whole process of curing effectually the animal substance does not occupy more than one quarter of an hour, economising thereby labour and time, to a very great extent.

"2. At any season of the year, and in any temperature, even under the influence of a tropical sun, the process is effective, and may be used with perfect safety.

"3. The materials employed are the same as hitherto used, but less than one-third of the usual quantity is consumed.

"4. Any desired flavour, and any degree of saltiness may be communicated, the process being thus equally applicable to hams, tongues, spiced meats, and other preparations, as to plain salting. Fish, poultry, &c., may also be treated with equal advantage.

"5. By this process the nutritious elements of the animal substance are all preserved in it, which, by the old mode of curing are necessarily much deteriorated.

"6. By this process hides can be prepared for packing with great advantage, occupying much less space, thoroughly preserved, and rendered fitter for the tanning process."

These important results are attained by means of a machine of very simple construction and action, whereby the two greatest powers in nature are brought into operation, namely, exhaustion and pressure—the one to prepare the animal substance to receive the antiseptic or preservative fluid, and the other to secure its equal and effective distribution. The materials used are the same hitherto employed in salting meat ; but the great saving of labour and time, as well as of the quantity of the materials consumed, together with the perfect certainty of the operation being effective, under any disadvantage of temperature or other atmospheric influence (hitherto so utterly destructive to the process of preservation), and also the all-important fact that by this

new process the whole nutritious elements of the animal substance are retained in it, form the principal features and unquestionable advantages of this new discovery.

Now, how important to the human race are the consequences deducible from these facts ! In the first place, we must view the matter as connected with the preservation of human food throughout the world. The bounty of Providence has covered the face of the earth and the waters under the earth with all that can administer to the wants of mankind, but the influences of climate and other inimical causes, in many of the most productive quarters of the globe, interfere and render useless those blessings. In the tropical climates at all times, and during the summer and autumn months of colder regions, all animal substances (which it may be said comprise the most important portion of human sustenance) have hitherto been incapable of being preserved, decomposition commencing almost immediately after the extinction of life, and thereby preventing the successful application of any antiseptic ; for the instant decomposition begins in any animal substance, impure gases are evolved, which destroy the fibres of the substance, and occupying the various vessels, necessarily prevent the admission of any other body—this being the cause of what butchers generally term the "salt not striking." The simple fact of withdrawing these gases, and introducing immediately after the antiseptic in vacuo, must at once carry the conviction, that if the substance is capable of being preserved at any time, or under any circumstances, it must be so then. How important must this be to those extensive regions within and approaching to the tropics, abounding as they do with all animal products, which have hitherto been turned to little account in their own locality, and to no account for the rest of the world. But we must view the matter yet closer, and as it more immediately and domestically concerns ourselves. The quantity of human food, fish, flesh, and fowl, annually lost during the hot weather in this country is enormous, besides which there is much in a bad and unhealthy condition that is sold at under rates of price and with the most baneful effects, to the poorer classes. Butchers, curers, and others know this well, and to their cost. Hereafter there will be no excuse for any tradesman offering for sale impure meat ; for as soon as he finds it in any way turned, by adopting this process he can perfectly save it, even though decomposition has partially commenced. To families wishing to cure their own meat or fish, and prepare hams, tongues, or spiced meats, to public institutions, large farmers, and numerous other classes, it must prove invaluable. In a mercantile point of view it is of the utmost importance. In countries where hitherto curing has been impracticable, a new and most valuable trade may be expected to spring up ; and from the quantity that will be produced, the world will be supplied with the necessities of life at a greatly reduced cost. For the curing of fish the process is admirably adapted, and must be of incalculable benefit to the Newfoundland trade, and to fisheries in general. In the article of hides, a great improvement takes place in their fitness for the tanning process, with the great advantage of rendering them unassailable by worms, and capable of being packed in one-third the compass formerly occupied. During the hot season is the best period for killing cattle for their tallow, but the other portion of the carcass is then, of course, lost. Not so now. In any temperature, under any climate, and at any season, the animal substance can now be saved and secured. In a political point of view this matter is not less important. The contracts for the supply of the navy, hitherto such a considerable item in the expenditure of the state, how greatly will they be reduced ! and at the same time how much more healthy and nutritious will the food be ! A vessel furnished with one of these machines, and on a foreign station, must not hereafter be compelled to look to home for her supplies, but at the nearest and cheapest point can supply herself. The Admiralty, we understand, have already ordered a quantity of beef and pork for inspection and trial.

The expense entailed on patent processes generally much diminishes their value in a public point of view ;

but the patentees of this important discovery have wisely determined to impose so trifling a charge for their own remuneration that no obstacle of this kind will interfere with its universal and profitable adoption.

In fine, we conceive that this discovery is calculated to create a great and most beneficial revolution in matters of the highest importance to mankind throughout the world.

ON PLANTING POTATOES.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—I perceive in your number of last month, a letter of mine, on planting potatoes, copied from the *York Herald*, and also a short notice of a similar experiment, signed "De Rohan." I have been favoured by a letter from "De Rohan," desiring me, if possible, to account for the dissimilarity in our conclusions thereon, which I think is quite possible to do, if dissimilar our conclusions are; but I apprehend they are not so much so as "De Rohan" at present believes.

You will observe, sir, that "De Rohan" takes a gallon of potatoes, which he divides into two parts; the first part of ten potatoes he plants whole, at two feet apart; of course, that portion of his seed covers a space of 20 feet. The other moiety he cuts into 54 sets, which he plants one foot apart, and will, therefore, cover a space of 54 feet. The produce of 20 feet, planted with whole tubers, is 89lbs. We may therefore reduce the experiment to a simple rule-of-three sum, as follows, discarding fractions:—If 20 feet produce 89lbs., what should 54 produce? The answer will be, 240lbs. The next consideration is, the greater weight of seed the whole tubers would require, and would amount, by "De Rohan's" statement, to about $4\frac{1}{2}$ lbs. more in 54 feet, which, being deducted from 240lbs., would leave 235 $\frac{1}{2}$ lbs. Now as "De Rohan's" produce was only 222lbs. on 54 feet, by sliced sets, the balance would be in favour of whole tubers, by 13 $\frac{1}{2}$ lbs. If the potatoes planted had been moderate sized, the whole tubers would probably have gone nearly as far in proportion as the sliced ones. Undoubtedly "De Rohan's" experiment was not so favourable to whole tubers as mine; but, allowing it so, it bears out my conjectures as stated in my last notice, that the same favourable results would not be found in garden ground, or new soils apt to produce too much haulm, as, of course, those soils would do their office with a lighter bodied seed; and that "De Rohan's" soil is rich, we may gather from the fact of his unexampled produce—amounting, by my calculation, to nearly 800 imperial bushels per acre; and the weight of his single potatoes so great as we, in the "far north," have never seen. The variety of seed "De Rohan" planted I am unacquainted with, at least by that name; it must be eminently productive. The variety I used in my experiment was, what we in our neighbourhood know by the name of "the poor man's friend," being very productive, hardy, and a good keeper; it is a pretty good sized, unevenly-shaped red potatoe. I did not discover any marked distinction in the produce, in the size of the tubers, between the cut and the uncut sets; the quality I did not try, as they were mixed with others, after being measured. The tubers I planted whole were promiscuously taken, large and small; "De Rohan" selected the smallest. A question might here arise, which would be most efficient? which I am at present unable to answer, but may be ascertained by farther experiments. Another consideration is the climate, or rather the weather, last summer. In the

south it was very productive, warm, and dry—in the north, the wettest, coldest, most ungenial ever remembered; and there is no doubt a great portion of the potatoe seed perished for want of body, which would not have happened if the seed had been planted whole: but as I have elsewhere remarked, these experiments, (like many other agricultural operations,) will be found to have different results in different soils and climate, and more particularly perhaps in the difference in the fertility of the seasons.

I cannot conclude without begging "De Rohan's" pardon for the liberty I have taken with his article; but as he appears to be a gentleman only desirous of arriving at the truth, that must be the excuse for my freedom, recommending him to try his next experiments in the open fields, and on exactly equal portions of land, as that is the only way to find the comparative amount of produce, and at the same time measuring or weighing his seed; he will then arrive at correct conclusions. I am, sir, yours respectfully,

R. C. WEATHERILL.

Hall Garth Farm, Kildale, Feb. 8, 1841.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—In your January number, page 13, is a letter from Mr. Addis Jackson, who is surprised at the small allowance of hay considered sufficient for four cart-horses, per week, by the Chartham Club; and well he may be, with the little corn they add to it. I know not a subject more worthy of discussion by farmers' clubs, than the best and cheapest mode of keeping working horses, which, on arable land, is fully equal to the rent, and nearly equal to the labour. But correctness should of all things be attended to; without it, what is the use of their decision—and surely our Chartham friends must be in error.

We usually give our horses 2 bushels of oats, and 2 $\frac{1}{2}$ trusses (54lbs. each) of hay, per week; but a winter or two back, having much very heavy carting, and long hours, from half-past six to five o'clock, I gave my horses half a bushel each, per day, of oats, and no hay, but barn chaff of course, *ad libitum*—and well they did on it; they kept up their flesh, their coats shone, and not one out of a dozen was sick or sorry one day for months. A neighbour, whose horses are large, gives his three bushels of oats each, per week, and one truss of hay. Circumstances and locality would of course guide a man in his choice of these very different plans—as, for instance, where hay is plentiful and cheap, the first would be preferred; where it is scarce, and the cattle large, more corn and less hay is better. The comparison of expence stands thus, for three horses for a week:—

	£	s.	d.
6 bushels of oats at 28s. per qr.	1	1	0
7 $\frac{1}{2}$ trusses of hay at 63s. per load.	0	13	1 $\frac{1}{2}$
	1	14	1 $\frac{1}{2}$
10 $\frac{1}{2}$ bushels of oats at 28s. per qr.	1	16	9
No hay.	0	0	0
	1	16	9
9 bushels of oats at 28s. per qr.	1	11	6
3 trusses of hay at 63s. per load.	0	5	3
	1	16	9

In neither have I charged the barn-chaff, and in the two latter plans of course much more of it would be consumed; but it is not a very expensive article—and how much better would be their condition, and the dung they made, and how much more work would they do if required.

For a whole year, I think the following a fairer calculation than that received from Chartham.—For four horses:—

From Oct. 1st to June 15th, each	s.	d.	£	s.	d.
horse to have, per week					
2 bush. oats	7	0			
1 bush. beans	2	6			
2 trusses hay	3	6			
				96	4 0
Not knowing what to say for barn-chaff, I put <i>nil</i>	0	0		0	0 0
From June 15th to Oct. 1st, each					
horse to have, per week					
1 bush. oats	3	6			
1 peck beans	1	3			
				14	5 0
2 acres winter tares, grown on fallow for turnips, cost 2 <i>l.</i> , allowance for turnips not being so good after them, 4 <i>l.</i>			6	0	0
1 acre second crop clover			2	10	0
1 acre of after-grass to Oct. 1st			0	5	0
Cost of food	119	4	0		
2 ploughmen by the year 10 <i>s.</i> per week	52	0	0		
Blacksmith by contract	3	0	0		
Collar maker do.	3	0	0		
Interest on capital, 4 horses at 25 <i>l.</i> , good second hand harness at 2 <i>l.</i> , 10 <i>l.</i> at 5 per cent.			5	8	0
Wear and tear of horses 1 <i>s.</i> each per week	10	8	0		
Farrier	3	0	0		
Total	£196	0	0		

Our totals do not vary much, but some of our items do considerably; as certainly their allowance of corn and hay is not near enough for horses in full work. This 50*l.* per annum per horse sounds large; but I do not believe it can be done properly for less. Some feed with bran, thinking they then eat less hay and chaff; but death from gripes is often caused by that, and their condition is very inferior.

I apportion these four horses in two ploughs to do the work on 100 acres, arable turnip land (1-5th turnips) or 150 acres heavy (but two-horse ploughing) land—which difference is caused by the fallows in one requiring to be finished by July 15, while the whole summer is allowed on the other. This is, supposing they never go off the farm, except with corn. Trusting the Chartham gentlemen will revise their decision, and that some experienced horse proprietor will show us a more economical system than mine,—I am, Sir, your humble servant,

W. W.

We learn from our correspondent "Amicus," that excellent agricultural lectures, combined with geology and chemistry, are delivered at Aberdeen, and that they are well attended. This is an announcement which will be hailed with gratification by our readers, as an additional effort in the advancement of agricultural knowledge.

THE TURNIP QUESTION.

TO SIR JOHN M. TYLDEN.

SIR,—Having answered your *ell-long* string of questions, you favour me with a modest additional *inch*, to which I shall now pay my respects;—not from my having leisure to become a weekly correspondent, but from a willingness to lend my very limited support to any landowner who, like you, have the agricultural good of the country at heart—and who, like you, does not disdain to glean from the humblest sources whatever can, by more influential means than appertain to my position, be especially directed towards agricultural weal.

It seems that we are agreed that England can be made to produce double the present yield of food. To put the proposition in fewer words, I would say that the country is *not half cultivated*; for which there are many reasons, and I will, with your permission, notice two or three of them, in the hope of bringing out abler correspondents on the same subject. Landlords, as a body, do not often attend to the farming qualifications of an incoming tenant, but most times select from a host of applicants the apparently surest or most monied man, heedless whether the land be only "*half cultivated*," or even *run out*, provided he is in punctual attendance on rent day. Others eagerly close with the applicant who offers a sum beyond the *live-and-let-live* rent; but this endeavour to get blood out of a stone frequently meets with its own reward—that is, in getting no rent at all after the first few years.

We all know of the competition that prevails whenever a tolerably good piece of land is to be let, and of the tendency of such competition to keep up rents: but with that I have now nothing to do. I will not ask if the landed interests be thereby permanently benefitted, and will only ask whether the doubling of old England's produce is facilitated by that competition? That is the only point I have just now to do.

It will, perhaps, be said that landlords are not always competent judges in this case, and therefore leave such matters to their stewards. The answer to this would lead to a new question, which I shall dismiss by observing that the penny-wise system, which does out a bare subsistence to stewards, never contemplates paying for *responsibility*; consequently, landlords have no more right to expect to have the ablest or safest advisers, than they have to expect the first-rate legal or medical advice from unpaid, or unrepaid professional men.

But the crowning bar to the fostering of skillful husbandry is the almost uniform excommunication of the luckless tenant, who dares *think aloud* and act upon political principles differing from those of his landlord. As an applicant he gets no hearing, and if in possession he becomes a marked man, and is ousted at the first convenient opportunity to make room for some pliant successor, just knowing enough to keep the land "*half cultivated*." Cowpers, Richmonds, Cokes, and Westerns are not sufficiently common. The landlords have an undoubted right to make the most of their patrimony, but if they exact the uttermost farthing of its fair value, they lose in one way what they gain in another. Their ancestors derived a legitimate influence from those kindly feelings, which flowed from generation to generation amongst the easy-rented yeomen of old. If modern landlords consent to receive the utmost value in cash, then do they forfeit the claim to enthrall their tenantry as to politics, unless indeed such landlords make a corresponding abatement in the yearly rent.

In addressing a landowner, I have ventured to touch upon points most likely to escape the attention of that class, when it is much occupied in parrying the heavy blows aimed at agriculture from powerful combinations; but I do think when tenants have an opportunity of speaking, they ought to be encouraged to speak out, because many a good landlord occasionally errs from a want of the knowledge of the whole truth. Besides, no stone, little or big, should be left unturned in these times to keep toiling agriculture chin above water.

I now proceed to answer your last questions:—

1. I do consider that such crops are owing to extensive cultivation, including, of course, the autumnal preparation, but I find that the increased expense is more than proportionably repaid by the increased crop.

2. I grow the best and heaviest crops of turnips on my sands, made good by sheep and high farming, and in laying on certain admixtures of different soils; for instance, chalk, clay, marl, heavy land mould, &c.

3. For answer to this, *vide* my letters dated 20th January, and 17th July, 1840, in the *Mark Lane Express* of that time.

4. Answered in No. 2.

My method of growing good crops of wheat on my "burning sands," is as follows:—

After turnips comes barley, then clover, then wheat, that is to say, when I do not *cross till*, which I frequently do. As a general rule, I plough the clover-ley as soon after harvest as possible, say about Michaelmas, in order that the land may settle down firm, to lessen labour by treading it by means of horses and sheep. As I can get upon these sands in almost all weathers, I prefer drilling in the wheat as late as December. I begin by harrowing and treading by sheep until the land becomes as firm as it can be made. Three bushels of seed per acre is then drilled in rows at nine inches apart, then harrowed lightly with a one-horse harrow, so as just to cover the seed. About the first or second week in March the small annuals, particularly the poppy, make their appearance; but these, in their infant state, are easily destroyed by repeated harrowings, on an even surface, if performed in dry weather. My work is then done until harvest time, except the cutting out of the thistles, which, however, have been almost extirpated on my land. I compress these light lands as much as I can with a heavy roller; but *compression* is not the only principle adopted by this, and the admixture of soils. I have grown 8 qrs. of wheat per acre where only 2 qrs. were previously grown, at a cost of 40s. an acre for summer weedings, whereas now the expense of weeding may be rather under than over sixpence per acre.

I must now take my leave, Sir John, and until I can find a pen that will go by steam, and by itself, I had better give my ramblesome goose-quill a holiday, otherwise my mangle-wurzel concern may be sadly mangled, and my turnip turn up a blank.

I am, Sir, your most obedient humble servant,
Wingham, Jan. 29th. ROBERT MATSON.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir,—As your columns have of late been much filled on the subject of turnip growing, and as many doubts must have arisen in the minds of your readers acquainted with the usual produce and cultivation of Swedish turnips, I am induced to make a few observations on the subject, which, if you think worthy, you may introduce in your valuable journal.

In the first place, I am one of those who think of offering bets is not a mark of wisdom, and consequently accepting them must be better avoided. I have been a turnip grower for twenty years, but have never been so fortunate as to grow forty tons an acre, as stated by Mr. Matson, and I quite agree with your correspondent Rusticus, that a much greater weight may be grown per acre of Skirving's than of Matson's; although the latter are a beautiful quality, they do not run to size, and are not calculated to produce a heavy crop. I have grown them on highly cultivated land together, and find a difference of from 4 to 5 tons per acre, the greatest weight being twenty-eight tons; they are grown on the flat, and are a fine piece of Swedes. I am aware, errors are frequently made unintentionally, and however much one may be inclined to doubt the accuracy of Mr. Matson's statements as to his growth of turnips, I was much more surprised at his following crops, namely, wheat, beans and wheat. I am not at the moment, able to put my hand on your paper containing the quantity grown per acre, but shall feel greatly obliged by your again stating it. I am glad to hear Mr. M. has so good a landlord, as he certainly must be a first-rate farmer, and must have a good farm; at the same time I think he ought to consider all tenants are not so blessed, and that perhaps other landlords may be led to think their lands produce the same heavy crops; at all events, I consider his statements calculated to do much injury, and certainly very little good.

I am, Sir, yours respectfully,

AN OLD SUBSCRIBER.

Brown's Hotel, Palace Yard, Jan. 28.

Sir,—Although there may be some of your readers who think that the "Turnip Question" has already occupied too much of your space, this will not be the opinion of those who are impressed with a true sense of the value of the turnip crop to the farmer. I venture to address you on the subject with a view to throw out a few hints which I hope may have the effect of calling into the field some gentlemen in this county whose experience will enable them to offer information of immense importance. I would, if it were necessary, apologise to these gentlemen, whose names I take the liberty of using, but I am quite sure they possess too much public spirit to demand or expect it.

I begin, then, with John Parkinson, Esq., of Ley-Fields, who this year gained a prize for the best crop of turnips within a certain distance of Ollerton, and who has, for many years, been one of the most successful cultivators of the best kind of turnips in this well-cultivated district. Secondly—Richard Milward, Esq., of Hexgreave,—but I cannot stop, I find, particularly to remark on what has been done by all the superior cultivators of turnips in that part of Notts included in the circle extending ten or fifteen miles round Ollerton; I must, therefore content myself with expressing a hope that every individual amongst them who has any useful information to give, will come forward and cheerfully render it, for the benefit of his brother farmers; for in this way, better than any other, may it be shown how, in any and every locality, the best crops and the best varieties may be grown.

Much good may arise out of the discussion, if those who are in the several turnip districts the most successful growers will freely communicate their plans, and the results.

Some plan might be adopted by which the aggregate experience of all the best turnip growers would be brought together in one view. The idea of a prize essay at once presents itself, but does not seem so fitting as the delegation of some one or two individuals for the purpose would be, inasmuch as the time and energies of many different persons would be expended in a case where one or two, if duly qualified, would do the work quite as well—what has been done resolving itself more into a question of fact than of science.

Nothing can be more perfectly clear, than that the same labour and expense may be bestowed on the same quality of land, by two different persons, and the result will be, that one shall have, in some cases, 10 tons per acre more than the other from having a better variety. Again, it is very evident that the time of sowing is a vital question, and at present but imperfectly understood. It now varies in different neighbourhoods, as much as six weeks; but how much of this discrepancy arises from the non-adaptation of the kind to the particular locality, it is impossible, with our present information, to say.

It is satisfactory to know, as this important question has been started, that it is in the right hands, if they will but do justice to it. If the idea which I have suggested should be taken up, I should think that the fifty Farmers' Clubs which are established in the kingdom, would readily subscribe their two to five pounds each for such an object.

It is not possible to withhold an expression of regret and surprise when exaggerated statements are put forth, as they do not tend to elicit truth when brought to the test of a sober examination; it is to be hoped, however, that they will not be allowed to enter into this question.

Mr. Matson must be a fortunate man in having such a supply of manure! I can tell him of a friend of mine, Mr. Sharpe, of Scarthing Moor, near Tuxford, who has grown fine turnips this year on land which was originally hardly worth half a crown an acre, without any fold-yard manure. I hope that Mr. Sharpe will send you a particular history of his crop. I am yours truly,
J. WEST.

Cellingham, Jan. 22.

SIR,—Finding by the editorial article of the *Mark Lane Express* of the 18th Jan. inst., that you are desirous of obtaining evidence, and every information as to the Turnip question, and that you not only encourage the farmers of England and Scotland in particular to come forward with evidence on the subject, but taunt them with "having maintained a dogged silence," now I do not see why the *Green Isle* should be excluded from the competition, although behind hand (as it must be admitted) in agricultural improvement; but the day is not far distant, when Ireland will take her place in agricultural science, and I hope I may not be accused with the too sanguine temperament of my countrymen, when I assert that the dawn of a glorious sunshine, (such as Scotland witnessed about forty years ago) has more than already commenced with us.

But to return to the question in support of Mr. Matson's assertion, that he has grown forty tons of Swede turnip to the acre, I am humbly of opinion that it is quite possible for him to do so, as I have lately ascertained that I have myself grown forty-one ton (topped and tailed) on the Irish acre, in a soil only of moderate quality for the growth of turnip, and only moderately manured, and under the disadvantage of the bulbs being coarse and ill-shaped from the quality of the seed; and I am pretty sure, had I procured Mr. Skirving's or Mr. Matson's improved purple variety, that it alone would have gone a good way towards making up the difference, besides what

could have been effected by additional manure, a more suited soil, &c. I therefore hope, and indeed have no doubt, Mr. Matson will succeed in his challenge and undertaking, and am, Sir,

Your most obedient servant,

JOSEPH LAMBERT.

Brookhill, Claremonis, County Mayo, Ireland.

SIR,—I have observed in your valuable paper, a great deal has been written under the head of "the Turnip Question." I beg to remark on that most useful root, the Swede turnip, it must be obvious to every person, that good land, well cultivated, will grow a good sort of Swede to its best perfection, but a bad one will, by the same means, be forced into its worst character; it therefore proves the necessity of obtaining a good, but hardy, useful sort of Swede—not too tender in its nature, or the most handsome, as I have seen some. I have had some considerable experience in the saving of seeds of many kinds, and I am satisfied that as, by neglect, the sort will degenerate, also by taking the utmost pains, the sort will become very handsome,—scarce any top, with a small tap root, similar to a six week's turnip, and less hardy than the Swede—and that by judicious saving between the two extremes may be attained, the hardness of the Swede being one of its most desirable objects. I have seen the weight of Mr. Deacon Skirving's sort, and some of Mr. Matson's, as grown by that gentleman, in Kent; I cannot find any that have, this season, attained the weight (in 50 turnips) that Joslin's improved sort of Swede have; they were grown by Mr. R. Pocock, of Hedges Farm, near St. Alban's, who kindly allowed me to take fifty of them to the following show; and I must remark, that some of the most influential farmers of this neighbourhood have been looking to your paper for an impartial statement of the result of the late Tring Turnip Show. The following you may rely upon as being correct:—

Mr. Houghton's 50 Swedes, 351lbs.

Do. do., 321lbs.

Do. do., 284lbs.

Do. do., 243lbs.

Mr. Hart's do., 405½lbs.

Mr. Thomas Woodman's do., 269lbs.

Mr. Little's do., 341½lbs.

Mr. J. Woodman's do., 258lbs.

Mr. Deacon Skirving's sort, 331lbs.

Mr. R. Pocock's Josling's improved, 429lbs.

Mr. Matson's, (8 of his largest weighed 58lbs.,) 50 of that size would weigh 362½lbs.

Mr. Brown showed 50, which weighed 496lbs.; they, when rejected, being a bad sort of white-fleshed Swede.

If this would not take up too much space in your columns, the insertion of it would much oblige your humble servant,

R. JOSLING, seedsman, St. Alban's.

February 4th.

SIR,—I am a constant reader of your intelligent paper, and seeing of late many remarks on the culture and produce of the Swedish turnip in England, I had the curiosity to try the weight per imperial acre of three fields, containing together upwards of ninety acres, all sown with purple top Swedes, and I beg leave to state the result as under, viz.:—

First field sown 15th May last, per imperial acre 35 tons.
 Second field, sown from 20th to 25th May, per ditto 29½ do.
 Third field, sown first week in June .. 28½ do.
 Tops, roots, and clay, cleanly taken off. I may add, that I had my seed from Messrs. Lawson and Sons of Edinburgh.

A worthy neighbour sent me a return of his crop at 32 tons per imperial acre. All the above were grown on drills 27 inches apart.

You are at liberty to use the above facts as you may think proper. AN IRISH FARMER.

SIR,—I have, for a considerable time, been watching the correspondence in your valuable journal on the growth of roots, and have been much surprised at the statements made by Mr. Matson and others, being able to grow so much weight per acre.

In your postscript, January 18th, you so earnestly seek discussion, the good results of which I so fully believe in, being myself a member of the North Walsham Farmers' Club, a meeting of which, held December 10th, it was proposed to ascertain the greatest weight of Swedish turnips per acre, grown on 27 inch, and 24 inch ridges, and 18 inch flat work*. Should you consider the result worthy a place in your columns, I beg of you to insert it.

I ought, perhaps, to attempt a description of the soil and tillage, although I fear it will be an imperfect one. The soil on which I made the trial is deep mixed loam, not wet to require draining, and never scalds, naturally kind for turnips, grows good wheat, clover, and barley. Having five times ploughed, and thoroughly pulverized by scarifying, harrowing, and rolling, the seed was drilled, June 12th, having set on about 20 tons per acre of manure made from bullocks, fed on turnips and oilcake. As soon as possible after the turnips were up, the horse-hoe was carefully used, then hand-hoeed with eight inch hoes three times, and slightly moulded up in August. The result was as follows:—

	Tons.	cwt.	qrs.	lbs.
On 24 inches.....	18	8	2	8
On 27 do.	16	2	3	12
Flat 18 do.	15	10	0	0

I must confess myself to have been miserably disappointed at the general weight, although I believe our turnips to be considerably under an average crop. I should not have been so particular in the detail as to tillage, but to prove they were not much neglected; the weight proving I have much to learn and nothing to teach others.

Mr. Matson, in answer to Sir John Maxwell Tylden's 4th question, states, he applies upwards of 40 tons of well fermented manure per acre. I am at a loss to know how so much manure could be found for turnips, as if either one-fourth or fifth of his farm be sown with turnips manured at that rate, it must consume all that can be made; and it is a mystery to me, after applying such quantity, that it should be necessary to consume half the crop on the land. As it is desirable to produce something more than twenty shillings for a pound expended, I think Mr. Matson should have given the expense at which he grows his turnips. It may be his object to excel in growing them at the loss of his other crops; I calculate that much is to be done by

change of seed. I have already procured some of Mr. Skirving's, and should feel much obliged if Mr. Matson would forward me a peck of his; and I will remit the money to any place named by him, and he may depend they shall have a fair trial. I am, yours respectfully, GEORGE GOWER.
Dilham, near Worsted, Norfolk, Feb. 1, 1841.

P. S.—I am not vain enough to suppose that much information is conveyed in the above remarks, and shall leave you to decide if they are worthy a place in your paper; but I feel certain their conveying to you the information that a Farmers' Club has been established at North Walsham, under very promising prospects of success, which already numbers more than 50 members of the principal gentry, yeomen, and farmers in the district, will be sufficient excuse for troubling you with this.

SIR,—In consequence of a former letter that I wrote to you relative to the growth of Swedish turnips, and the weight per acre I had grown here, I have had several letters requesting me to state the method adopted by me in obtaining what the applicants call "enormous crops." I am always glad to give any information I am possessed of, for the benefit of agriculturists; and in reply, therefore, to the different *querie* put to me, I may state generally, that the field from which I had upwards of forty three tons of Swedish turnips per statute acre, in 1840, is what I call a clayey loam, with a retentive subsoil. It was drained with tiles some years ago effectually, by cutting the drains, not more than from five to six yards apart. In 1839 it was broken up from pasture for oats; the crop was good, and so soon as the oats were cut and removed from the field, I had the stubble skim-ploughed, say from three to four inches deep, and in that state I allowed the field to remain a month or five weeks, and then I had it ploughed from sixteen to eighteen inches deep with Smith's subsoil-plough. After this operation, the field was not more disturbed until the spring of 1840, when I had it harrowed so soon as it was sufficiently dry. Between the end of March and the third week of May, I had it ploughed and harrowed three different times. From the subsoil-ploughing in the autumn, the ground was very mellow in the spring; and after it was three different times ploughed and harrowed, the soil was very fine. The next operation was forming the drills, which were about thirty inches apart. While this was going on, I had the dung in a *moist state* carted out and spread in the hollow between the drills, with some bone-dust sown over it, and covered in immediately (to prevent evaporation) by having the drills split out over them. The quantity of dung per statute acre applied, was about from twenty-six to twenty-eight tons, and over this dung I had sown with the hand, about half a ton of the best raw bone-dust per statute acre. After the dung and bone-dust were covered in, say about from two to three inches from the surface, by the splitting of the drills, I immediately, while the *dung and ground were moist*, had the seed sown by a machine, at the rate of about three pounds weight per statute acre, taking care that it was deposited in the *dung*; and thus by being so deposited, it vegetated immediately, and grew out of the way of the fly in course of eight or ten days. The moisture of the dung and soil, and the heat occasioned by their admixture with the bone-dust, forced the plants for the first fortnight the same as they had been in a hot-bed—at the end of this period

* The object being to ascertain the best width, or if ridge or flat work produced most weight.

the plants were almost ready for singling out, which as soon as they would bear the operation, I had done with the hand hoe from fourteen to sixteen inches apart. The above is the method that I have adopted at this place for these last eighteen years, and I have never once missed a crop; and I believe the lightest crop I have ever had during that period has exceeded thirty-six tons per statute acre. I never sow later than the last week in May. If weight of crop is wanted, it is absolutely necessary to sow in May. As I stated in my former letter, I have always had the seed from Mr. Skirving, of Liverpool; and I consider the turnip growers in England more indebted to that gentleman than to any other individual, for the improved species of Swedish turnip which have for a number of years been known and successfully cultivated in this neighbourhood. I am satisfied that I should not have had more than two-thirds the weight of crop, had I trusted to the seed which is generally sold to the poor farmer, as the improved Swede!! I ought to have stated that the turnips were twice horse-hoed, and once hand-hoed after singling. I had last season, all the crop removed from the ground by the latter end of October, and had the whole ground ploughed and sown with wheat during the first week of November. Until the estate agents in England are capable of acting as tutors to the tenantry and able counsellors to the landlords, we never can progress rapidly in agricultural improvements. Leases of fifteen or twenty-one years are also necessary for the prosperity of the landed proprietors, as well as for that of their tenantry.

ALEXANDER OGILVIE.

Mere, near Knutsford, Feb. 6.

A Correspondent of the *Mark Lane Express* doubts a statement taken from the *Wexford Independent*, that Mr. Cliffe, of Belvieu, had 30 acres of turnips last season, of the average produce of 50 tons to the acre—saying that "cows afar off have long horns." I have the honour of knowing the gentleman who conducts the *Wexford Independent*, and I am sure he would not state what he did not believe to be a fact. But English farmers may not be aware, that our Irish acre is one-third more than their English statute acre. Many of them doubt Mr. Matson's statement, that he grew 45 tons to the English acre, on which the discussion on "the turnip question," in the *Mark Lane Express* arose. In corroboration of the statement in the *Wexford Independent* on the subject of Mr. Cliffe's turnips, I have the authority of Mr. Ryan, of Kilfera, near Kilkenny, for stating that he got a surveyor to measure an acre of his Swedes of the average quality of the field, and this acre produced last November 50 tons, 2 cwt. Now what will the correspondent of the *Mark Lane Express* say to this statement, which can be verified on the most respectable testimony? Will he say "that cows afar off have long horns?" However, as truth and not deception, is our object, it may be necessary to state, that our plantation acre contains 160 perches of 49 square yards to the perch, while the English statute acre contains only the same number of perches at 30½ square yards to the perch. The soil is gravelly calcareous (limestone gravel). Mr. Ryan did not cultivate his turnips with the view of obtaining any prize; he cultivated them in the usual way. The land had grown ley oats the previous year; it was manured with dung, for the turnips were sown in drills 27 inches asunder, the 10th of May, and thinned at 10 or 12 inches apart. The land is now sown with drilled Wheat. The turnip seed was bought of Skirving, of Liverpool. So much for the "turnip question," which I hope to find revived next season.

M. DWYER.

Barrowmount, Jan. 30.

SIR,—I consider it a great privilege, and calculated to improve the system of agriculture in various parts of the kingdom, to be permitted, through your widely-circulated journal, to give publicity to any experiments which we have tried, and to ask questions from your more experienced correspondents. Nothing can be more interesting than eliciting information upon the turnip question, the foundation crop of all others. But such over-statements as Mr. Matson's—I quite agree with "An Old Subscriber"—is calculated to do much harm. Let every man, when he states what he grows, mention the number of acres, and the expense of his crop. I can make a hotbed and grow cucumbers, and sell them at a price which would realize a large sum per acre; but where on a farm could I raise or procure a sufficient quantity of manure to do it? Mr. Matson can put nearly all his manure upon a few acres, and raise great crops of turnips; but where would his average be upon a farm of 700 or 800 acres? I saw in Oxfordshire, last summer, some striking experiments: the land was very poor—of what is called a dead, or foxy earth. The turnips were all sown the same day upon the ridge system; at first they used pig manure, then rich horse manure, then bone-dust and ashes (I do not recollect the exact proportions), and afterwards put, with every large shovel-full of ashes and bone-dust, a double hand-full, first of saltpetre, then of soda; the biggest turnips would, with their leaves, cover a space about the size of the crown of a hat; there was no difference between the soda and saltpetre; but these were much the strongest and the largest turnips, whereas those with ashes and bone-dust alone were unhealthy-looking, and not bigger than a crown-piece; next to the soda and saltpetre came the pig manure, nearly as large, but not so healthy-looking; those with horse manure less so. I could easily ascertain the after-growth, if required, but this is satisfactory as far as it goes. But perhaps on other soils the result might be very different. Believe me,

Your's, very truly,

T. B. BROWNE.

ON THE USE OF LIME AND SALT.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—As I intend, when the spring season for sowing arrives, to try the effect of lime and salt upon a field of eight acres, which has hitherto defied all my efforts to procure a good crop, in consequence of the wire worm having devoured it—I shall feel obliged by being informed in your March number, whether *drilling* the lime and salt with the oats is likely to be injurious to the seed, either in germinating or in its after growth? I am somewhat afraid that so large a quantity as fifty bushels per acre of this manure, one-third of which is salt, may have a serious effect upon the young oats, from coming so directly in contact with them. I shall feel much obliged to you, Mr. Editor, to obtain for me an answer to the above enquiry in your next month's number; and should this meet the eye of C. W. Johnson, Esq., or any other intelligent reader of your most valuable Magazine, I trust they will favour me with their opinion upon the subject.

I am, Sir, your obedient servant,

Feb. 10th, 1841.

ENQUIRER.

P.S.—Where can any printed explanation of the system of suspension bridge building, discovered by Mr. Dredge, be obtained (as mentioned by Lord Western in this month's magazine, page 135)?

QUERIES AND ANSWERS RELATING TO THE AGRICULTURE OF CHESHIRE, 1838.

Q. Is the agriculture better or worse than that of other counties, such as Yorkshire or the Eastern counties?

A. Much worse; owing partly to the tenants being more ignorant and more, as it were (from want of leases) in a state of vassalage, and partly owing to the landed proprietors not wishing to have Gentlemen Farmers on their estates, (many of them persisting in the *worse* than antiquated notion that their religious creed *must* be the *true* test of their agricultural knowledge) and partly to most of the persons having the charge of landed property in this county, being incompetent to judge what sort of management is best for the ultimate and permanent benefit of the estates. Schools where a liberal education, including *physical* and *moral*, as well as *intellectual*, [for the agricultural population are much wanted, and until these are supplied, the agriculturists never will be what they ought to be in point of intelligence.

Q. What is the usual management of heavy soils fit for Wheat and Beans?

A. Summer fallow from Ley, Wheat second year without any manure, Oats third year, Summer fallow the fourth year, Wheat fifth year, Oats with grass and clover seeds sixth year, Hay seventh year, afterwards pasture until the ground has so long rested as to be considered able to bear another *such* rotation!

Q. What for Turnip land?

A. Similar to No. 2, except substituting Potatoes or Turnips, or some such fallow crop for a naked fallow.

Q. How often do naked fallows recur?

A. Answered in No. 2.

Q. How many times are they ploughed?

A. Sometimes four, five, or six times, according to circumstances; but, generally speaking, the last two ploughings are so late in the season, say the end of August or September, that they are of little effect in either cleansing or mellowing the ground.

Q. Is the long fallow for Barley, including two Winters, ever introduced?

A. Never practised in this county.

Q. What kinds of Ploughs are generally used?

A. Generally the common Cheshire plough, but many of the better farmers are now adopting the Scotch iron swing plough.

Q. How many horses to each?

A. Often three or four in a trip, i. e., one before the other; but such farmers as have adopted the Scotch swing plough, now plough with two horses abreast.

Q. Are Oxen much used for the plough?

A. Never.

Q. How are they yoked?

A. Answered by No. 9.

Q. Do they harrow the land very fine before and after sowing?

A. Generally speaking moderately fine, but not too much so.

Q. Is the drill husbandry in use for green crops—are they horse-hoed?

A. Amongst the better farmers, such as have adopted the iron plough, the drill husbandry for green crops is beginning to be practised on a small scale.

Q. What is the average quantity of Wheat per

acre sown, and what reaped on land of moderate fertility?

A. About two bushels (of 70lbs. to the bushel) sown on a statute acre, and amongst the ordinary class of farmers about eighteen or twenty bushels such weight of produce is considered a good crop! Amongst the best farmers (owing to superior management) thirty-five or forty bushels is considered to be only a fair average crop.

Q. What is the rent (rates and tithes included) of such land?

A. These vary from 30s. to 45s. per statute acre, according to circumstances, and the distance from a town, the facility of getting manure, &c. The tithe everywhere is hated, and is a great drawback to improvements in agriculture.

Q. Is much clover sown, or other artificial grasses?

A. Much more than formerly, but still amongst most farmers the practice of sowing *hay-seeds*, full of all sorts of *bad seeds*, is but too prevalent.

Q. When grass land is broken up, is it usually fallowed the second year?

A. Usually fallowed the first year, except by good farmers (who are but few in number) who lay their land down to grass in good heart, i. e., full of manure. They have generally Oats the first year of breaking up, and green crop in drill the second year, the third year Wheat sown with perennial Rye-grass and Cloverseeds, in the fourth year hay, fifth year pasture, &c.

Q. When land is laid down, is it clean and in good heart?

A. This is answered in No. 2; such a system as is there stated, land cannot be laid down in good heart—it must be what the farmers call “*in landlord's condition*.”

Q. How many white crops succeed each other on newly broken up grass land?

A. This is answered in No. 2.

Q. Are Beans generally cultivated?

A. Very few are cultivated.

Q. Are they drilled or dibbled, and at what distance?

A. Generally dibbled, what are sown.

Q. How many times horse-hoed or hand-hoed?

A. Perhaps once hand-hoed, but often never touched after being sown.

Q. Are Turnips raised in rows or broadcast?

A. Generally speaking broadcast by the common farmers, but the best farmers now sow them in rows of about 27 to 30 inches apart.

Q. Are they fed off by sheep, or drawn for the cattle?

A. Almost never fed off by sheep, generally drawn for cattle.

Q. Are there any late improvements in the dairy, or breed of Cows?

A. The breed of Cows is much improved within these last ten years; the short-horn Durham, or a cross of the short-horn, is now preferred almost everywhere in the county.

Q. What is the average produce of a Cow in Butter or Cheese?

A. About 360lbs. of Cheese, or about 180lbs. of Butter.

Q. What is the rent of good grass land?

A. This varies from 35s. to 100s. per statute acre.

Q. Are many Sheep kept, and what breed?

A. Very few Sheep are kept, and what are kept are generally Cheviot, or a cross between the Cheviot and Leicester, or South Down.

Q. Is there a spirit of improvement in any but the Gentlemen of property?

A. The spirit of improvement seems to be nearly as slow amongst *most* Gentlemen of landed property, as amongst the tenantry of the county; perhaps partly owing to the want of funds, but more, I should imagine, from the want of *respectable* and experienced men, in whom they can place unlimited confidence, to manage the whole detail of the various departments of their landed estates. It cannot be expected that improvements should be judiciously made by men who (whatever their talents in their own profession may be) are practising as lawyers, or by men taken from some menial office, such as an *old Groom*, a butler, or gardener, and placed at the head of all the departments. It might as well be expected that the whole of a large and complicated building is to be properly and economically built by a common bricksetter or stone-mason, or that any piece of complicated machinery is to be constructed and worked by any common blacksmith, who might be able with *much* labour to make one or more of the simplest wheels, as that the management and improvement of an extensive landed estate is to be conducted by any others than men educated for the business, and *capable of seeing at one glance* whether the whole of the complicated machinery is working well or not. Merchants and manufacturers, who are men of business themselves, always take care to have *proper* persons to conduct *their business*, however high the remuneration may be for their services. I may add that were two or three hundred *respectable* estate agents who have been *liberally* educated, and in every way *properly trained to the profession*, placed on two or three hundred of the *best estates* in England, *they would do ten times more* for the improvement of agriculture, during these next ten years, than all the agricultural societies that now are or may be established in the kingdom, or the united wisdom of both Houses of Parliament could accomplish for these next *fifty* years. If *such persons* were to be appointed the *responsible managers of all lands* belonging to the Crown, I should think that their present revenue would be at least quadrupled in less than twenty years; and if such gentlemen were to be appointed by the Government, or by the Lord Chancellor, *inspectors* over all the landed estates under the control of the Court of Chancery, and report annually to his lordship, as to the condition of the lands, and necessary repair of the buildings, &c., they would be the means of preventing much serious waste on such estates, and consequent loss and misery to many of those who afterwards may possess them.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Many old Farmers in this part, are in the habit of laying manure on stubble, and then ploughing the land once over in December, or the beginning of January, and letting it lay until spring, for Swede turnips. It is then worked, and manure put into the rows in the usual way. Should any of your correspondents have the goodness to make any remarks respecting the first manuring, it would greatly oblige, sir, with great respect, your constant reader,
Feb. 1841.

YORKSHIRE.

ON DRAINING.

SIR,—In the Mark Lane Express of the 18th of January, I observed a letter on Draining, signed "John Wreford, Broughton House, Kent," regarding which, if you will grant me permission, I beg, through the medium of your paper, to offer a few remarks, being fully convinced that it is of great consequence that a proper mode of draining should be pursued—at the same time cordially concurring with your correspondent, "that, when it is judiciously done, no outlay of capital can be more advantageously made." I trust, therefore, that any observations I may make, will be looked upon as offered with a view to discover, if possible, the proper mode.

Mr. Wreford observes, that the right method of draining a field, "is to observe where the highest part of the field or piece of land is situated, and cut your drains as nearly across that part of it as will admit of a drop, in every rod, of about two inches;" and then mentions, that the main drain should be made directly up and down the declivity, stating, at the same time, that he has pursued this plan with great success for at least forty years. I should like, however, to know whether or not this system of cross-draining has been followed by your correspondent on a variety of soils, or has been confined to land with a subsoil of chalk, of which description I am aware there is a great abundance in Kent. If it has been confined to that kind of soil, Mr. Wreford may be quite right. I can say nothing to the contrary, never having had any experience in that description of soil; but that the cross system of draining is preferable, or at all equal to the upright system upon a great majority of soils—indeed, on any with which I am acquainted,—is decidedly contrary to my experience;—of which I may be allowed to have considerable—when I mention the fact, that for fourteen years I have been draining on a great variety of soils, and in different parts of the country; and that within the last four years, I have put into my farm nearly 100 miles of drain with perfect success. If your correspondent was right in the supposition that water has passed down the hills for ages in veins and fissures, then his method of cross-draining might be correct; but the reverse I find to be the case in all the substrata of this part of the country, which generally consist of alternate layers of loose and of retentive soils, lying in nearly a horizontal direction, from between which the water consequently oozes in lines crossing the face of the field, so that by laying off the drains in a vertical direction, the different strata are infallibly cut across at right angles.

But whatever may be the cause of the superiority of upright over cross drains, of this I am convinced,—land is much more effectually and permanently drained by the upright mode than any other; and I can assure your correspondent that all my fields drained on the one plan, are decidedly drier than those drained on the other.

Mr. Wreford, also, I think is in error when he recommends the drains to be filled within eight inches of the top, as I conceive that they never ought to be filled nearer the surface than fourteen inches, for the purpose of permitting the subsoil plough to work—an implement which I conceive ought to be used on all thorough drained land; and which, were it done so, I am convinced, would assist greatly in making the land of this country produce double what it does at present.

I am, Sir, your most obedient servant,
A FARMER NORTH OF THE TWEED.

LONDON SUPPLIES OF WHEAT, AND AVERAGE PRICES.

The following document was, on Friday, laid on the table of the House of Lords:—

A RETURN of the QUANTITIES of WHEAT as purchased in the MARKET of LONDON; with the AVERAGE PRICE thereof for EACH WEEK during the months of July, August, and September, in the Years 1820, 1830, and 1840, as returned to the Inspector of Corn Returns.

Weeks ended.	Qrs.	Average.	Weeks ended.	Qrs.	Avrg.
1820:		s. d.	1830 cont.		s. d.
1st July ..	4028	73 1	13th Aug. ..	3554	74 7
8th ..	0836	74 4	20th ..	3255	72 1
15th ..	5498	74 9	27th ..	3023	71 10
22nd ..	5633	78 5	3rd Sept. ..	2478	67 6
29th ..	6706	79 5	10th ..	3888	64 9
5th Aug. ..	8065	80 3	17th ..	3290	60 9
12th ..	4844	79 5	24th ..	3420	61 4
19th ..	5800	79 2	1840:		
26th ..	6322	77 6	3rd July ..	8813	73 11
2nd Sept. ..	6202	76 9	10th ..	9652	74 6
9th ..	3852	74 8	17th ..	9598	75 8
16th ..	4851	72 3	24th ..	11235	79 3
23rd ..	6450	71 1	31st ..	14068	80 5
30th ..	6048	66 1	7th Aug. ..	10600	80 2
1830:			14th ..	12613	78 5
2nd July ..	4107	73 7	21st ..	15703	78 10
9th ..	5342	72 2	28th ..	15437	79 6
16th ..	4212	72 3	4th Sept. ..	8000	74 7
23rd ..	3638	74 9	11th ..	5097	68 8
30th ..	5156	76 0	18th ..	4629	68 1
6th Aug. ..	3007	76 0	25th ..	5010	66 1

Wm. Jacob, Comptroller of Corn Returns.
Corn Department, Board of Trade, Feb. 8, 1841.

BIRMINGHAM.

We have delayed our annual circular later than usual, hoping to be able to furnish our statistical information complete to the end of the year, but we are sorry to say we have not succeeded. In advertent to the state of the corn trade during the past year, we have to notice a considerable reduction, considering the very superior quality of this year's growth, in the value of most kinds of grain, as compared with the corresponding period in 1840; the average prices of the kingdom being respectively as follows:—

1st month, 1840.—Wheat, 65s. 5d.; Barley, 39s. 2d.; Beans, 40s. 4d.; Peas, 40s. 1d.; Rye, 37s. 11d.; Oats, 23s. 10d.

1st month, 1841.—Wheat, 61s. 2d.; Barley, 33s. 2d.; Beans, 40s.; Peas, 39s. 11d.; Rye, 33s. 11d.; Oats, 21s. 7d.

A variety of circumstances have contributed to this result, especially as regards Wheat. The estimated quantity of free Wheat and Flour, at the commencement of last year, was 550,000 quarters, and there was entered for home consumption during the year 2,463,013 quarters, making a total of 3,013,013 quarters. The stock at the end of 1840 is supposed not to have exceeded 450,000 quarters, leaving 2,563,013 quarters as the quantity gone into consumption in addition to our growth. The state of our monetary affairs, and the failure of one or two considerable speculators in grain, within the last few months, has probably caused more of the Foreign Wheat to be pressed on the market than would otherwise have been the case. The crop of 1840, there is reason to believe, proves to be more nearly an average one than, considering the very ungenial weather during part of last summer, might have been expected, especially in most of the eastern, midland, and western districts of the kingdom. Neither the stocks of free Foreign Wheat, or of those in the hands of the farmers, however, make it probable that we shall have a low range of prices during the present year; but whether they may be at all equal to 1840, will in a great degree depend upon how far our absurd legislation—directly tending, as it most powerfully does, to deprive the labouring population of a profitable application of their industry, and consequently their

means of a comfortable subsistence—may force them to the use of cheaper food, such as Potatoes, &c., as a substitute for bread. Should the consumption of Wheat still keep pace with the increase of our population, as it doubtless would under a system of free trade, we may expect a considerable advance before next harvest. There is one feature in the imports of Wheat to which we alluded in our circular of last year, that we think has not been sufficiently considered by those who have turned their attention to our probable future demand for Wheat from Foreign countries. In the year 1833 the export of Wheat and Flour from Ireland reached its maximum, and amounted to 541,475 quarters of Wheat, and 1,059,587 cwt. of Flour. Since that period it has gradually and uniformly decreased, and last year was only 59,522 quarters of Wheat, and 180,476 cwt. of Flour, to the 5th of 10th month; while during the same period nearly double that quantity was imported into Ireland from English or Foreign ports. This is a gratifying indication of the improving condition of the people of that part of the British Empire; but it deprives England of two or three weeks' consumption, while her population is increasing at a rate without any former parallel. It is obvious, therefore, that a very large annual supply of Wheat will in future be required, unless the deficiency is met by the increased breadth of land sown with Wheat, by the improvements in agriculture, by which a larger quantity per acre is produced, or by the increased poverty of the people, and the enhanced price checking the consumption. The extent of the operation of either of these causes upon our supply and demand, of course it is impossible correctly to estimate.

The duties on Foreign Wheat have fluctuated during last year from 2s. 8d. per quarter to 27s. 8d., while the average duty paid on the whole that has been liberated for home consumption is 7s. 2d. per qr. It will be seen from the annexed, that the price of Wheat in some of the Foreign Ports, as compared with the corresponding period of the previous year, is very much reduced; this, however, has not yet led to much speculation, though a few purchases, chiefly on Irish account, for spring shipment, have been made. Our stocks of free Wheat (mostly of secondary quality) in Gloucester are 19,570 quarters;—9,370 of Odessa and Bannat; 5,100 Lower Baltic; 1,800 Spanish; and 3,300 Dantzic: of bonded 5,055 quarters. Our present prices are—English red, 7s. 6d. to 8s. 2d.; white, 7s. 8d. to 8s. 4d. per 60lb. here. Dantzic, 8s. 1½d. to 8s. 6d.; Spanish, 7s. 10d. to 8s. 2d.; soft Odessa, 7s. to 7s. 4½d.—hard, 6s. 10½d. to 7s. 3d. per 60lb. at Gloucester.

The crop of Barley is generally admitted to have proved above an average in quantity, though very various in quality, and the price, as compared with this time last year, of best descriptions is as 38s. to 50s., and upon inferior as 28s. to 33s. per quarter. We believe no import of this grain will be required this season; indeed some quantity of old Foreign remains in the hands of importers, for which there is little present prospect of sale, unless a demand for Wales should spring up for Barley bread, which is sometimes consumed there to a large extent.

The crop of Oats in this district is said to be very good, but the limited extent to which they are grown makes it of little importance, as our prices are almost entirely regulated by the supply from Ireland; and although it is the general testimony that the crop there has proved above an average, the quantity imported into Gloucester has not been larger than usual, and the demand more than equal to that of corresponding periods in former years. Our present stock of this grain does not, we believe, exceed 6,000 quarters, and though the rapid accessions to the societies in Ireland for the promotion of abstinence from all intoxicating drinks has greatly lessened the demand for Oats for distilling, it is supposed that the surplus arising from this cause will be absorbed by the increased consumption of Oatmeal. Our present prices in Gloucester, as compared with the corresponding period last year, are 21s. to 22s. against 27s. to 28s. per 31½lb.

Although the crop of Beans is reported to be an average one, the quantity of last year's growth in hand

was so small, that they have borne a high relative value, which may in some degree be attributed to their excellent quality. Present prices—new, 16s. to 17s.; old, 18s. to 19s. per 196lbs. here.

We have had much less demand for Peas than usual this year, and our arrivals have been small. They are nominally worth for grinding 15s. to 16s. 6d. per 1966 lbs., and for boiling 5s. 6d. to 6s. per imperial bushel here; the consumption of the latter does not appear to be increased by the relatively high price of Potatoes. Old Foreign Spring Vetches have realised 6s. 9d. to 8s. 3d., and New. 8s. 6d. per imperial bushel.

JOSEPH AND CHARLES STURGE.

2nd Month, 3rd, 1841.

[illegible]

The quantity of Corn, Meal, & Flour, imported into Great Britain from Ireland, in the years 1827 to 1840.

W. HEAT.	Q.TS.	BARLEY.	BEANS & PEAS.	MALT	UTMEREAL.	W. FLOUR, &c.
1897	10,630,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1898	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1899	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1900	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1901	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1902	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1903	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1904	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1905	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1906	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1907	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1908	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1909	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1910	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1911	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1912	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1913	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1914	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1915	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1916	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1917	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1918	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1919	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1920	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1921	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1922	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1923	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1924	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1925	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1926	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1927	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1928	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1929	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1930	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1931	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1932	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1933	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1934	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1935	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1936	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1937	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1938	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1939	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.
1940	10,530,329	87,140	1,183	Q.TS.	438,966	Q.TS.

Corn Curing Meal & Flour entered for Home Consumption from 1834 to 1840

WHEAT.		BARLEY.		OATS.		RYS.		PEAS.		BEANS.		MAIZE.		BANK.		FLOUR.		TOTAL.
Qrs.	B.	Qrs.	B.	Qrs.	B.	Qrs.	B.	Qrs.	B.	Qrs.	B.	Qrs.	B.	Qrs.	B.	Cwt.	qrs.		lb.
834	45872	11031	50853	21	75761	34323	210	1	3	65726	130	236902						
835	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
836	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
837	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
838	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
839	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
840	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
841	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
842	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
843	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
844	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
845	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
846	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
847	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
848	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
849	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
850	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
851	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
852	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
853	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
854	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
855	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
856	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
857	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
858	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
859	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
860	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
861	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
862	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
863	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
864	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
865	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
866	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
867	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
868	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
869	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
870	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
871	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
872	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
873	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
874	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
875	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
876	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
877	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
878	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
879	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
880	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
881	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
882	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
883	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
884	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
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886	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
887	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
888	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
889	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
890	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
891	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
892	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
893	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
894	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
895	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
896	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
897	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
898	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
899	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
900	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
901	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
902	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
903	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
904	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
905	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
906	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
907	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
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912	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
913	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
914	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
915	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
916	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
917	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
918	45836	11036	50848	21	75817	34318	210	1	3	65782	130	236958						
919	45836	11036	50848	21	75817	34318	210	1	3									

*An Account of the Corn, Grain, and Flour, imported
into Great Britain in each year, from 1st Jan. 1815,
to 1840.*

Year.	Imported from Ireland.	Imported from B. N. A. Colonies.	Imported from all other parts.	Total Imported.
	Qrs.	Qrs.	Qrs.	Qrs.
1815	831192	25	333041	1154258
1816	873865	3	319203	1193071
1817	699800	25877	1773383	2506659
1818	1207851	56618	3474651	4788220
1819	967961	14257	1693255	2767573
1820	1417120	40697	1300953	2758770
1821	1822816	40916	216738	2040970
1822	1063089	23439	102365	1188993
1823	1528153	89	53432	1581794
1824	1634024	201	609147	2244682
1825	2203862	95059	962718	3361739
1826	1693391	30500	2218830	3942721
1827	2837314	61035	2550316	5444669
1828	2826988	21600	1272396	4120984
1829	2307817	7335	2680414	4995566
1830	2215549	79634	2355412	4650595
1831	2466721	225240	3316760	6006721
1832	3026541	129476	668422	3820439
1833	2700375	117745	336524	3154644
1834	2740698	66829	492071	3283998
1835	2655799	25016	296189	2977908
1836	2847800	18561	625032	3491349
1837	2938519	19060	1306870	4254449
1838	3150852	19479	1515250	4685581
1839	1916043	17435	4573660	6507142
1840	2030067	178828	3811964	5203343

Corn, Meal, and Flour imported, entered for home consumption, and duty paid since 1823 inclusive, the first year it was levied on corn.

	Qrs. Imported.	Qrs. for Home Cons.	Duty Paid.	
			£	s. d.
1823	53866	12362	10310	4 3
1824	81254	677195	176383	15 6
1825	1060837	534425	304919	15 5
1826	2252771	2098944	442755	14 9
1827	2622263	2988866	792934	15 8
1828	1294378	1237494	196634	0 2
1829	2694432	1939358	907320	5 5
1830	2691884	2649348	790677	0 0
1831	3570569	2265392	547909	0 0
1832	688422	475680	309676	0 0
1833	481506	112408	36252	0 0
1834	560056	236902	99416	0 0
1835	321206	439988	201673	0 0
1836	643592	408217	152791	4 0
1837	1325930	842326	589200	0 0
1838	1534730	1960475	183000	0 0
1839	4581099	4657146	1115461	0 0
1840	3990522	3903518	1159000	0 0

The average Duty paid on the 11,318,549 qrs. of Foreign Wheat imported and entered for home consumption, since the present Corn Law came into operation, up to the 5th ultimo, is 5s. 8d. per qr.

Average Price of Grain per quarter in England and Wales, for twenty years, ending 1840.

	Wheat.	Barley.	Oats.	Beans.	Peas.
	s. d.	s. d.	s. d.	s. d.	s. d.
1821	56 2	26 0	19 6	30 11	32 9
1822	44 7	21 11	18 2	24 6	26 5
1823	53 5	31 7	22 11	33 1	35 0
1824	64 0	36 5	24 10	40 10	40 8
1825	68 7	40 1	25 8	42 10	45 5
1826	58 9	34 5	26 9	44 3	47 8
1827	56 9	36 6	27 4	47 7	47 7
1828	60 5	32 10	22 6	38 4	40 6
1829	66 3	32 6	22 9	36 8	36 8
1830	64 3	32 7	21 5	36 1	39 2
1831	66 4	38 0	25 4	39 10	41 11
1832	59 8	33 1	20 5	36 5	37 0
1833	52 11	27 6	18 5	35 1	37 0
1834	46 2	29 0	20 11	36 7	33 0
1835	39 4	28 11	22 0	30 0	30 3
1836	48 9	30 4	23 1	38 4	37 3
1837	55 10	30 4	23 1	38 7	37 9
1838	64 4	31 5	22 5	37 4	36 8
1839	70 6	39 1	26 6	41 3	41 1
1840	66 6	36 3	25 9	43 6	42 5

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—Allow me to enquire through the medium of your Magazine, whether any of your readers have tried the Prickly Cymfrey (*symphitum asperum*) for soiling, on such a scale as to be able to give any information as to how it will answer for that purpose? I have a few plants of it and find it exceedingly productive, having cut 14lbs. of green food at a time from one root; and I know of no plant that would answer so well, if cattle would like it, and thrive upon it.

I have no doubt that on good land it would produce 40 tons per acre per annum, with little or no expense in the culture; but I should like to know how cattle would do upon it before giving up much ground to it. They do not appear to be fond of it, but that may be owing to not having enough to give it a fair trial; as many sorts of food are not eaten by cattle readily at first, which they are fond of when used to. There appears to be a large quantity of mucilage in the plant, from which I should suppose it would be nutritious. Any information from any one who grows enough to keep stock upon it for any length of time, will be thankfully received.

Id.

ANSWER TO QUERY RESPECTING CORN-MILLS FOR PRIVATE USE.

SIR,—In answer to the questions of a "Constant Reader," upon the use of Corn Mills for the Farmer's use, I beg to say that I have had one in use for the last three years, upon so simple a plan, that I think I may say it has not cost more than 1l. per year for accidents, and 1l. per year for dressing the stones in grinding 100 qrs. of corn annually, made by Bewley, of Chelmsford, and the cost, including everything, about 70l.; it has a pair of French stones, 38 inches high, worked by three horses; it was originally made for two horses, but finding it rather hard work, I had an additional shaft put for another horse, which will grind two bushels per hour, being only exercise for the horses; and if I want an extra supply, I can grind three bushels per hour by making the horses go a little faster, and feeding the hopper a little more; and, from the benefit I have experienced from its use, I would not be without it for double its cost, although I live within a mile of three mills, for the following reasons:—

1st, I can always have a supply of meal, without being dependent on any one, never being short of wind or water.

2nd, I can grind all the rubbish of tail corn, which is not worth 6d. per bushel for grinding, and if thrown down fowls will not eat, but if ground makes fair meal for lean pigs, &c.

3rdly, I always can find employment for three horses whenever it happens to be wet, and can find nothing else to set them about; and as I never want my meal only in the winter, I am very glad to get them out of the way.

4th, I always have the same weight back again, allowing for a trifling loss; but if sent to a mill, the allowance for waste is 2lbs. per bushel.

5th, It is upon so simple a plan, that all the attendance required is, a man occasionally going in to put corn into the hopper, leaving a boy to see that the horses keep a regular pace; and any common labourer in the yard can superintend the working of it.

Should a "Constant Reader," or any other person who may happen to see this, have any idea of fixing one, an observation or two, taken from practice, may be useful to them;—I would suggest that the stones are 30 inches high, instead of 38, as a few inches make a vast difference in the labour of working them, and the large wheel over the horses should be seven feet, mine being only five feet, made of cast iron; with the above alterations I think two horses would do the same work it now takes three to. Should you think the lines I have written will answer the questions of a "Constant Reader," you will much oblige me by an insertion of them in your widely-circulated Journal.

I remain, Sir, yours respectfully,

B. B. S. H.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—I occupy a light sandy farm, and the moles are so numerous that every year they do me a serious injury. Please permit me, through the medium of your journal, to ask some of your readers to acquaint me with the best method of destroying them. I also beg to be informed, by the kindness of some of your readers, the cheapest and best method to make a pond on a dry sandy substratum; and also how many bushels of wood ashes, per acre, without any other manure, is considered a sufficient dressing for Swedish turnips. Hoping the above questions may not be of too little importance to occupy a space in your columns,

I am, Sir, yours obliged,

Heavitree, Feb. 11, 1841.

J. S.

POOR LAW RETURNS.

ROYAL AGRICULTURAL SOCIETY
OF ENGLAND.

Years.	Expended for Relief &c. of the Poor.	Decrease per cent. compared with 1833-4.	Rate per Head of Expenditure on Population, 1831.	Expended for Law Charges.	Decrease per cent. compared with 1833-4.	* Expended for other Purposes.	Decrease per cent. compared with 1833-4.	Totals of the three preceding heads.	Decrease per cent. compared with 1833-4.	Average Price of Wheat per quarter.	Years.
1833-4	£5,317,254	..	9s. 1d.	£258,604	..	£935,361	..	£7,511,219	..	51s. 11d	1833-4
1834-5	5,526,416	13	7 11	202,527	22	995,361	..	6,664,304	11	44	1834-5
1835-6	4,717,629	25	6 9	172,431	33	823,212	12	5,713,272	24	39	1835-6
1836-7	4,044,741	36	5 10	126,951	51	637,043	32	4,808,785	36	52	1836-7
1837-8	4,123,604	35	6 0	93,982	64	607,929	46	4,725,515	37	55	1837-8
1838-9	4,406,907	30	6 4	63,412	76	483,703	50	4,964,022	34	68	1838-9
1839-40	4,576,965	28	6 7	67,020	74	466,698	47	5,110,683	32	6	1839-40

* There being no separate heading for this item of Expenditure in the year 1833-4, the Amount expended for the like purposes in 1834-5 is taken as an approximation.

AMOUNT OF MONEY EXPENDED IN ENGLAND AND WALES for the Relief and MAINTENANCE of the Poor, in Law Charges, and for other purposes (excepting County Rates, and payments under the Registration and Parochial Assessment Acts), during the years ended Lady-day, 1834, 1835, 1836, 1837, 1838, 1839, and 1840, respectively; showing the decrease per cent. in each year, on each of the heads of expenditure, compared with the year ended Lady-day, 1834; also the rate per head of Expenditure for the Relief of the Poor on the population in 1831 in each year, together with the average price of Wheat per quarter:—

At a council held on Wednesday, Jan. 27, present, P. Pusey, Esq., M.P., President, in the chair; Marquis of Downshire, Earl of Euston, Hon. Robert H. Clive, M.P., Hon. William B. Baring, M.P., Henry Handley, Esq., M.P., Thomas Raymond Barker, Esq., John Raymond Barker, Esq., Thomas William Bramston, Esq., M.P., John Walbank Childers, Esq., M.P., James Dean, Esq., John Evelyn Denison, Esq., William Egerton, Esq., Humphrey Gibbs, Esq., William Goodenough Hayter, Esq., M.P., Francis Pym, Esq., and the Rev. W. H. Rham—

George Wilson, Esq., of Dallam Tower, near Milnthorpe, Westmoreland, was elected a Governor, and the following gentlemen Members of the Society:—Read, Robert, V. S., Crediton, Devonshire

Shepherd, Julius G., Faversham, Kent
Kemp, William, Throwley, Faversham, Kent
Clifton, Thomas, Lytham Hall, Preston, Lancashire
Tuckett, Philip Debell, Frenchey, near Bristol
Corks, Rev. Chas., R. S. Vicar of Wolverley, Worcestershire

Grazebrook, George, Stourbridge, Worcestershire
Ford, A. R., Ellel Hall, near Lancaster

Townsend, Thomas, Hillmorton, near Rugby, Warwickshire

Daubeny, Rev. Edward, Ampney, near Cirencester, Gloucestershire

Taylor, William, Oxley House, Wolverhampton
Gilbert, Thomas, Marden, Devizes, Wiltshire
Austin, Robert, Gosden, near Guildford, Surrey
Gatacre, Edward Lloyd, Coton, near Kidderminster
Windle, Thomas Strattam, Beobridge, near Wolverhampton

Branson, T., Norton, near Shiffnall, Salop
Hunt, Josiah, Almondsbury, near Bristol
Tuckett, Alfred, Moored, Mangotsfield, near Bristol
Lister, J. S., Saleby Lodge, Alford, Lincolnshire
North, Charles, South Shoresby, Alford, Lincolnshire
Polton, Sir J. W., Bart., Redenham, Andover, Hampshire

Cutts, John, The Hill, Chesterfield, Derbyshire
Mee, John, East Retford, Notts

Sanderson, George, Mansfield, Notts
Cooper, Rev. Blakley, Lewcombe Rectory, Dorsetshire

Jackson, John, Winwick Grange, West Haddon, Northamptonshire

Bird, John, Yaxley, near Stilton, Huntingdonshire
Sneyd, Rev. John, Basford, Leek, Staffordshire

Broadie, P. B., Fenton Hall, Stoke-upon-Trent
Hill, R. C., Stallington Hall, Stone, Staffordshire

Cruce, John, Leek, Staffordshire
Digings, Jennils, Shereford, Fakenham, Norfolk

Mr. Handley presented the report of the Veterinary Committee.

LIVERPOOL MEETING.

The President laid before the Council the communication he had received from the corporation of Liverpool, on the subject of suitable localities for the accommodation of the meeting; and the council having proceeded to discuss the various points of business connected with sites for the cattle-yard and dining-hall, and the formation of a committee to undertake the superintendence of the proceedings, resolved, on account of the importance of the questions, that the consideration of the communication should be postponed to the monthly meeting of the council, to be held on Wednesday next; and that the President be requested, in the meantime, to confer with Lord Stanley on the subject of the local arrangements to be made in Liverpool for the accommodation of the society.

AMERICAN AGRICULTURE.

His Excellency the Hon. Andrew Stevenson, the American Minister, who has so long promoted in his diplomatic capacity the good understanding between his own country and Great Britain, having communicated

COUNTIES in which a DECREASE and an INCREASE of the total EXPENDITURE has taken place in the year ended 25th March, 1840, as compared with the Expenditure of the preceding year:—

The following are the Counties in which a decrease has been effected:—

Bedford	1 per cent.	Rutland	5 per cent.
Durham	0	Somerset	1
Leicester*	0	Suffolk	4
Lincoln	3	Sussex	1
Norfolk	6	Worcester	2
Northampton..	1	York, E. Rid..	1

In the following Counties the greatest increase has taken place:—

Berks	5 per cent.	Hertford	8 per cent.
Bucks	7	Kent	2
Cambridge	13	Lancaster	4
Derby	7	Warwick	8
Devon	6	Wiltshire	3
Dorset	6	York, W. Rid..	5

* The decrease in Leicester is less than 1 per cent.

to the society, as its first honorary member, the deep and lively interest he should continue to entertain towards the society on returning to America, and his desire to promote, by every opportunity which might present itself, the great cause of agriculture in the two countries, by effecting a beneficial interchange of communications on topics of agricultural importance between the society and the institutions of America. The council unanimously resolved, that the thanks of the society should be presented to the American Minister, for this expression of his estimation of the society, and his intention to promote so desirable an object.

FOOD FOR LABOURERS.

Numerous communications continuing to be transmitted for the society's premium for the best "Essay on Preparing Food for Labourers," it was resolved, that these communications should be returned to their respective writers, informing them, that unless sealed up, and made anonymous, by being furnished with a distinctive motto (instead of the writer's real name), the judges could not decide impartially on their merits, and they consequently would be precluded from competition for the prize in question.

Mr. J. M. Morgan, presented a beautiful and picturesque print of his design, for a self-supporting institution for training up the children of agricultural labourers in the acquirement of religious, moral, and industrious habits.

At a Monthly Council held on Wednesday, Feb. 3, present—Philip Pusey, Esq., M.P., President, in the chair, Duke of Richmond, Earl Spencer, Lord Portman, Lord Camoys, Lord Sandon, M.P., Hon. William B. Baring, Henry Handley, Esq., M.P., Thomas Raymond Barker, Esq., Thomas William Bramston, Esq., M.P., Colonel Challoner, John Walbank Childers, Esq., M.P., James Dean, Esq., Humphrey Gibbs, Esq., William Goodenough Hayter, Esq., M.P., William Fisher Hobbs, Esq., Samuel Jonas, Esq., John Kinder, Esq., William Woods Page, Esq., I. Wilson Patten, Esq., M.P., Sir Robert Price, Bart., M.P., Edward Aysford Sanford Esq., M.P., William Stephenson Scholey, Esq., William Shaw, Esq., William R. C. Stansfield, Esq., M.P., and Henry Wilson, Esq.

The following gentlemen were elected Members of the Society:—

Hand, James, Ludlow, Shropshire
Lloyd, Thomas, Langley, Ludlow
White, R., Prior Walton, Ludlow
Jones, E., Crankwell, Montgomery, Shropshire
Humphreys, A. L., Woodlands, Montgomery, Shropshire
Magennis, James, Pool Quay, Shropshire
Harris, Thomas, Longden, Shropshire
Humphreys, E., Walcot, Chirbury, Shropshire
Edwards, T., Hampton Hall, Chirbury, Shropshire
Newell, T., Walcot, Ludlow
Marston, F., Affcott, Ludlow
Acton, Sir Richard, Bart., Acton, Oswestry
Parker, T. N., Sweeney, Oswestry
Graunville, Bernard, Wellesbourne, Warwickshire
Bennett, Joseph B. H., Tutbury, Burton-on-Trent, Staffordshire
Lyon, Charles Walter, Burton-under-Needwood, Burton-on-Trent
Eaton, George, Spixworth, Norwich
Shafto, Rev. S. Duncombe, Rector of Buckworth, Huntingdonshire
St. Vincent, Viscount, Meaford, Stone, Staffordshire
Smithers, Sydney, Churchdale, Bakewell, Derbyshire.

FINANCES.

Colonel Challoner, Chairman of the Finance Committee, presented to the Council the Report of the Meeting held that day, announcing the current cash-balance in favour of the Society in the Bankers' hands to be 2,400*l.*, and recommending a further permanent investment of capital by the purchase of 1,000*l.* stock in the public funds.

LIVERPOOL MEETING.

The President reported to the Council the result of his communication with Lord Stanley on the subject of the arrangement for the meeting at Liverpool in July, and Lord Sandon informed the Council of the various advantages and disadvantages of the proposed sites for the Dining Hall and Cattle-Yard, in that town, of which his Lordship's local knowledge enabled him to render the Council much valuable aid in forming correct conceptions of the relative position and advantages of those sites.

His Grace the Duke of Richmond then moved, and Earl Spencer seconded the motion, that a Committee be appointed for the purpose of making enquiries in Liverpool, respecting the most eligible ground as sites, for the Dining Hall and Cattle-Yard, and the plans to be adopted in reference to the general arrangement of the meeting; such Committee to proceed as a deputation to Liverpool, on Wednesday the 24th instant, and report the result of their proceedings to the next monthly Council, on the 3rd of March. The Duke of Richmond then named the following gentlemen to form the Committee, three to be a quorum, and with power to add to their number:—

Humphrey Gibbs, Esq.	Thomas Raymond Barker, Esq.
William Shaw, Esq.	Henry Blanshard, Esq.
John W. Childers, Esq.	John Wilson Patten, Esq., M.P.
M.P.	
Colonel Challoner.	

Earl Spencer then moved, and the Duke of Richmond seconded the motion—That no local committee be appointed for the Liverpool meeting; but that the council should put the society in communication with some individual in Liverpool.

The Duke of Richmond then moved, and Earl Spencer seconded the motion—That the country shows of the Royal Agricultural Society of England should be open to the world.

The whole of these resolutions were unanimously carried.

EPIDEMIC QUERIES.

Mr. HANDLEY, M.P., as chairman of the veterinary committee, reported to the council the final recommendation of the committee, on the subject of the queries, to be issued by the society for obtaining accurate information from every part of the kingdom, on the subject of the nature of the prevailing epidemic; and the council having unanimously adopted the proposed queries, the secretary was directed to address a copy of them to each member of the society.

On the motion of the Duke of Richmond it was resolved—That copies of these queries should be transmitted to the respective secretaries of the Highland Society of Scotland, and the Royal Dublin Society of Ireland, with a request for a communication of any information on the subject, to be derived from those parts of the kingdom.

The Rev. GEORGE F. HOLCOMB, of Brinkley Rectory, near Newmarket, communicated a statement of a prostration of strength, and other disordered symptoms, in his Southdown ewes; and Professor Sewell, to whom the document was referred, has undertaken to report on the case.

COUNTRY ANNUAL MEETING OF 1842.

Earl Spencer then brought forward his motion, of which he had given notice at the Cambridge Meeting, and subsequently at the monthly council in December, on the subject of the Society's Annual Country Meeting next year being held in some part of the kingdom in the Hereford district; and having proceeded to enter into a detail of the respective advantages in this point of view, possessed by the various proposed towns in the west of England, as well as an enumeration of their comparative local accommodations for the purposes of the Meeting, his lordship had decided, in his own mind, that the city of Bristol was eminently to be preferred to any other town, on account of its being nearer to Devonshire and South Wales; the better lines of access it presented in the completion, by next year, of so many railways now in progress; and finally, the better accom-

modation the town itself would afford for the purposes of the Meeting.

Mr. Hayter, M.P., read a letter from Mr. William Miles, M.P., of King's Weston, near Bristol, inviting the Society to hold its Meeting of 1842 in that city, and detailing the numerous important advantages possessed by Bristol over every other town within the range of the Hereford district; and Mr. Sanford, M.P., fully corroborated the views of Mr. Miles, and urged the Council to adopt his lordship's motion; both expressing their conviction of the stimulus to improvement which would result from the Society's Meeting being held in that part of the country.

The Resolution proposed by Earl Spencer, and seconded by the Duke of Richmond, was carried unanimously.

AWARDS FOR IMPLEMENTS.

It was resolved, that the Judges of Implements at the Cambridge Meeting should be requested to apportion the 50*gs.* offered that year by the Society, among the persons whom they recommended in their Report as the most successful exhibitors; and that, at the next monthly meeting, the Council should take into consideration the distribution of the 200*gs.* voted this year as the amount of awards for Agricultural Implements.

SOCIETY'S MEDAL.

The Secretary was directed to apply to Mr. Wyon, Chief Medallist at the Mint, and beg distinct information as to the time when the Society would be put in possession of their Medals, for transmission to the successful candidates to whom they had been awarded.

SPECIMENS OF WHEAT.

The President read a letter from Professor Henslow, on the subject of his proposed plan for the mode in which it would be desirable that the specimens should be selected and packed, and of his intention of proposing for the Society a collection and arrangement of the Weeds of Agriculture.

PRIZES FOR HORSES.

The Duke of Richmond gave notice of his intention to propose at the next Monthly Council, the suspension of the Bye-Law, limiting the time at which new prizes should be considered, for the purpose of proposing additional Prizes to be given for Horses, Mares, &c. at the Liverpool Meeting.

DAYS OF EXHIBITION.

Mr. C. Fisher Hobbs gave notice of his intention to bring forward, at the next Monthly Council in March, the question of extending the time of exhibition from one to two days.

REGULATIONS OF LIVERPOOL MEETING.

On the motion of Earl Spencer the following Committee was appointed to take into consideration and arrange the Regulations for the Show of Stock, Implements, &c., at the Liverpool Meeting:—

Duke of Richmond.	Humphrey Gibbs, Esq.
Earl Spencer.	W. Fisher Hobbs, Esq.
H. Handley, Esq., M.P.	Samuel Jonas, Esq.

Communications were received from the Rev. J. M. King, of Dunster, Somersetshire, on the Society's Model Experiment; from Mr. Nash of Foulmire, near Royston, on the application of a new manure; and Mr. Joseph Yorke of Tewkesbury, on the Society's prize for a draining plough.

At a Council held on Wednesday, Feb. 10—present Thomas Raymond Barker, Esq., in the Chair; Hon. Robert H. Clive, M.P.; T. French Burke, Esq.; Humphrey Gibbs, Esq.; John Kinder, Esq.; William Miles, Esq., M.P.; W. Woods Page, Esq.; and Edward Ayshford Sanford, Esq., M.P.

Frederick Twynam, Esq., of Bishop's Stoke, Hampshire, was elected a Governor, and the following gentlemen Members of the Society:—

Whithead, Richard, West Farleigh, Maidstone, Kent
Barby, Christopher, Baldersby, near Ripon, York-shire

Cresswell, Robert, Idridgehay, near Works-worth, Derbyshire

Solly, Edward, jun., 38, Bedford-row
Warburton, Rowland E. E., Arley Hall, near North-wich, Cheshire

Verelst, Rev. William, Grayingham, Kirt-on-in-Lind-sey, Lincolnshire

Harrison, James, Lowfields, Kirkby Lonsdale, West-moreland

Humphries, Firmis, Aveley, Romford, Essex

James, John, Burnville Lodge, Tavistock, Devon

Maxwell, J. G., Coham, Black Torrington, Devon

Walker, Thomas, Berryholm, Sizerngh, Kendal

Smith, J. G. S., Melton Wood, Brigg, Lincolnshire

West, John, Collingham, near Newark, Nottingham-shire

Shooter, James, Kintbury, Newbury, Berkshire

Phipps, John Lewis, Doe Park, Liverpool

Phipps, Charles Paul, Doe Park, Liverpool

Smith, John, Springfields, Newcastle, Staffordshire

Bennett, Luke, Dimordale Hall, Newcastle, Stafford-shire

Bell, John, Trent Vale, Newcastle, Staffordshire

Gwyn, Richard Hodges, Astbury Hall, Bridgenorth, Shropshire

Dickinson, W., 7, Carzon-street, Mayfair

Adair, Alexander, Heatherton Park, Wellington, Somersetshire

Rogers, Edward M., Beyton House, Bury St. Ed-mund's

Fox, George Lane, M.P., Bramham Park, Wetherby, Yorkshire

Clayton, Richard Clayton Brown, Adlington Hall, Wigan, Lancashire

Darby, William Joseph, Green Hill, Halesowen, Shropshire

Meade, Hon. General, 48, Bryanstone-square

Mawe, Lister, Haxey, Isle of Axholme, Lincolnshire

Hector, C. J., M.P., Petersfield, Hampshire

Syer, Rev. Thomas, Little Rolton, Clare, Suffolk

Everitt, Joseph, Feering, Kelvedon, Essex

Fairhead, John, Totham, Maldon, Essex

Saunders, John E., Glanrhwdw, Carmarthen, S. W.

Allen, Henry, jun., Oakfield, Hay, Brecon, S. W.

Lowndes, Richard Charles, Low Hill, Liverpool

Cowan, Dr., Texteth Lodge, Liverpool

INFLUENZA AMONG HORSES.

Mr. Greaves, of Bakewell, Derbyshire, communicated to the Society a statement of the symptoms and successful mode of treatment in the case of thirty of his horses, which had been suddenly seized with the influenza during the previous week. The symptoms of the disorder began with loss of appetite and immediate prostration of strength, followed by a quick debilitated pulse, the eyes swelling out to an enormous size, (causing temporary blindness), and in some cases the throat being sore. As soon as the horses were attacked, he gave each of them a quart of good ale, and the same quantity of meal gruel, along with half an ounce of ground ginger; kept their bodies warm with dry clothing, admitted plenty of fresh air into the stable, using linseed and bran mash, and giving night and morning the following ball:—Emetic tartar, five ounces; saltpetre, five pounds; camphor, ten ounces; soft-soap, six ounces; feungreek, four ounces; linseed meal, four ounces; and Armenian bole, two ounces. The whole to be beat into a mass with treacle, and divided into balls weighing two ounces each. He states that he in no case bled the horses; and that he found them require nothing further than good nursing for a short time, taking the chill off the water given them to drink, bathing their eyes several times a day with nothing more than warm water, and in the case of sore throat blistering immediately. Mr. Greaves found that by this mode of treatment a perfect recovery was in every case effected in the course of five or six days.

Mr. Miles, M.P., remarked, that with regard to the question of bleeding in these inflammatory disorders, he

had always found in his own extensive experience that he never witnessed a case among his own stud, in which the inflammatory action was not checked if taken at once, and in the *earliest stage* of the complaint, giving every night a mash with an ounce of saltpetre.

EPIDEMIC AMONG CATTLE.

Mr. Miles also stated the singular effect of the epidemic among his cattle (introduced by some sheep bought at a fair), the eyes swelling to a preternatural size, discharging an acrid humour, and producing a painful irritation to the animals, which in every case cost their coats by the attack. He also remarked that the epidemic had assumed a milder form in the West of England, with the exception of a single district, and that warm clothing and warm drenches had been found most successful in the treatment of the stock.

The Hon. Robert Clive, M.P., informed the Council of the measures he had taken to get for the Society authentic statements of the epidemic in Shropshire, where no serious cases had however occurred. To the circumstance of his not purchasing new cattle, and introducing them among his other stock, he attributed his own entire exemption from the disorder on his estate.

MEDAL OF THE SOCIETY.

Mr. Wyon informed the Council that the dies of the Medal for the Society were in a state of great forwardness at the Royal Mint, Her Majesty's head being inscribed for the obverse, and the whole would be completed by the May meeting of the Society, and at an earlier date if required. The Council decided that Mr. Wyon should be requested to complete the execution of the medals by the monthly Council on the 7th of April next.

The Rev. George F. Halcumb, of Brinkley Rectory, Cambridgeshire, communicated to the Society his successful mode of cultivating heavy land; and Mr. Machin, of Gateford Hill, Worksop, his process for preventing smut in his wheat.

At a Council held on Wednesday, February the 17th, present, His Grace the Duke of Richmond, in the Chair; Thomas Raymond Barker, Esq.; James Dean, Esq.; Humphrey Gibbs, Esq.; William Goodenough Hayter, Esq., M.P.; Sir Charles Lemon, Bart., M.P.; William Miles, Esq., M.P.; William Woods Page, Esq., and William Shaw, Esq.

The following gentlemen were elected Members of the Society:—

Hill, Sir Robert Chambre, Knight, Press Hall, Shrewsbury

Hill, The Rev. John, the Citadel, Hawkestone, Shrewsbury

Exerton, Colonel Richard, Eaton Banks, Tarporley, Cheshire

Stanbrough, Charles Henry, Isleworth, Middlesex
Harman, Edward, Sun Fire-office, Cornhill, and Enfield, Middlesex

Lawrence, Charles, Gloucester

Sandle, William, North Ockendon, Romford, Essex

Townley, Charles, Townley, Burnley, Lancashire

Walters, John Thomas, Rugeley, Staffordshire

Wye, Henry J., Clifton Hall, Tamworth

Bell, Samuel, Newhouse, Newport, Shropshire

Combs, Joseph, Haverfordwest, Pembrokeshire

Jaraw, Lord, Castleborough, Wexford

Wood, John, Brownhills, Stoke-upon-Trent, Staffordshire

Littledale, Henry, Cardington, near Bedford, 33, Harley-street

King, Richard King Meade, North Petherton Rectory, Bridgewater

Denning, John, Pitt, Ottery St. Mary, Devonshire

Nilsson, Robert, Halewood, Liverpool

Ellis, John, Liverpool

Eyton, William, Gonsall, Shrewsbury

Beddoes, George, Brunslow, Bishop's Castle, Shropshire

Bartlett, Henry Albert, Flint House, East Harling, Norfolk

Ramsay, Alexander, Balmuin, N. B.

CAMBRIDGE PRIZE.

A communication was received from Mr. Joseph Bennett, of Tempsford, in reference to the prize of 10l. awarded to an animal, the property of his brother, Mr. William Bennett, but transmitted to him by mistake, informing the council of his having remitted the amount, through Francis Pym, Esq., one of the stewards of the yard at Cambridge. The council resolved, that this amount should be carried to the general funds of the society, and a new cheque be drawn for the prize in question, and transmitted direct to Mr. William Bennett, the real owner of the animal.

CAMBRIDGE DINNER TICKETS.

A letter was read from Mr. George Basevi, jun., of Saville Row, London, requesting that his name might be taken off the list of members, as he did not consider himself an annual member of the society, having merely become a member at Cambridge, for the purpose of obtaining dinner tickets on that occasion. The council having taken this communication into their consideration, unanimously resolved, that the secretary write to Mr. Basevi, and inform him that his name will be withdrawn from the society on his paying his subscription for the present year.

FATAL DISORDER AMONG BULLOCKS.

Mr. George Sexton, of Wherstead, near Ipswich, communicated to the society a new form of epidemic, prevalent during the last few weeks in that part of Suffolk. The disorder began with a shivering fit, attacking those animals which were highest in condition; one bullock being seized at nine in the morning, and dead at four in the afternoon of the same day, and another expiring after a quarter of an hour's illness. On being opened, the intestines, heart, and milk were found to be much inflamed, the milks weighing upward of a stone and a half each. The animals in question were two years old, and had suffered from the epidemic in spring, but had quite recovered from that complaint, and had been fed regularly upon Swedish turnips and oil-cake. Several of the other bullocks appeared unwell, and refused their food, but recovered after being taken up and bled. Mr. Sexton reported, further, that several other cases of the same kind had occurred in his neighbourhood.

GENERAL EPIDEMIC.

The Duke of Richmond was requested by the Council to select some medical practitioner, of extensive experience in the nature of epidemic complaints affecting the human species—to draw up a report to the society on the peculiarity of the prevailing epidemic among cattle; and Mr. Miles, M.P., was requested to obtain a medical report, on some interesting cases which had presented themselves in his own neighbourhood in Somersetshire.

Mr. HYETT, of Painswick, in Gloucestershire, suggested the probability of the present epidemic leading to similar results with those quoted by Professor Henslow (*Journal*, vol. ii., part I, pages 16 & 17), as the consequence of ergot of rye being taken as food; and thought it highly desirable that facts should be obtained on the possible influence of impure food, such as mildewed turnips or grass, smutty straw, or mouldy hay, on the cattle fed upon them.

His Grace the Duke of Rutland, having circulated the Society's Queries very extensively among his tenantry in the neighbourhood of Belvoir, in the counties of Leicester and Lincoln, informed the Council of his intention to present in a short time a satisfactory report of the result of these inquiries to the Society.

Mr. HARDMAN, Secretary of the Royal Dublin Society, informed the Council that he understood the disease had at length reached Ireland, and requested a further supply of the Society's Circulars.

The Council directed that an immediate supply of 50 copies of the Mode of Treatment, along with the same number of copies of the Queries, should be transmitted both to the Royal Dublin Society of Ireland and the Highland Society of Scotland.

The SECRETARY laid before the Council 108 Reports on the Epidemic, received from Members in various

parts of the kingdom during the past week. These original and authentic documents were regarded by the Council as of a highly interesting and important character, and were referred to the Veterinary Committee.

THAWED TURNIPS FOR SHEEP.

Mr. H. Warden, of Ty-Gwyn, near Abergele, North Wales, communicated to the Society what he considered an important fact for the information of the large flock-masters during severe winters, and which, though partially known to a few, deserved, on account of the long experience he had had of its value, to be extensively and generally published by the Society. In consequence of the hardened state of turnips when the frost is much in them, they are difficult to cut, and the cattle are unable to eat them: and it being a well known provision of nature, that the water below the ice and at the bottom of ponds and other collections of water is kept warmer than that near the surface, Mr. Warden, during the severe winter of 13 weeks' frost in 1813, when he had a flock of 254 Merino and other Ewes under his charge, which began to lamb at Christmas in that year, and had lost 15 of his lambs, adopted a plan for thawing the turnips which he found afterwards preserve the remainder of his flock, by continually keeping a day's consumption of turnips in the water under the ice of ponds or other stagnant water, or in running brooks with a hurdle staked above and below the turnips to secure them in their place. The frost was by these simple but effective means completely drawn out of the turnips, which acquired the genial temperature of the water, and thus became safe food for the flock.

INFLUENZA AMONG HORSES.

Mr. Davenport, of Capesthorpe, near Congleton, Cheshire, stated that the present distemper among horses was not new, Mr. Adams, an experienced groom, giving an account that fourteen of Sir Montague Burgoyne's horses were all taken ill twenty-seven years ago, in the same way, and all cured by the same means—namely, by bleeding, and afterwards by alteratives to relieve the system without violent purging. Mr. Davenport further remarked that all his own horses had been cured by Mr. Adams in the course of ten days—more or less; their limbs had been useless, their sight affected, and the whole system deranged; emetic tartar, antimony, camphor, and ginger being the remedies used. One of Mr. Davenport's neighbours administered aloes, and lost two of his horses in consequence. The cattle on Mr. Davenport's estates were all cured by following the directions contained in the Society's Circular, and in less time than the horses. Mr. Davenport stated that none of his *Scotch* sheep had been affected with the rot, a disorder he was in doubt whether to attribute to the prevalent distemper among stock or to the wet season.

REPORT ON IMPLEMENTS.

Mr. Shaw gave notice of his intention to move at the Monthly Council on the 3rd of March, that the Judges of Implements at the Liverpool Meeting be requested to make their Award of Prizes and Bounties for Implements, so that it may be announced at the same time as the Award of Prizes for Animals, &c.; and that tickets announcing the prizes be affixed to the implements to which any such prizes or bounties may be awarded.

Communications received from Sir Peckham Micklethwaite and Mr. Bruginton, were referred to the Journal Committee; and an announcement was received from Mr. Robert Rigg, F.R.S., of his intention to lay before the next Council a paper entitled—"Experimental and Practical Evidence, proving that Carbon is a Vegetable Product; with Observations on Professor Liebig's views on that subject, in his *Agricultural Chemistry*." Mr. Newman, of Court Farm, had leave to have a copy made of the Society's Model of the plan of Subsoil Drainage, adopted by him with so much success on his heavy-land farm near Uxbridge, for the purpose of presenting to the Society of Arts.

Mr. Charles R. Colville, of Lullington Park, presented a copy of the Regulations of the Burton-on-Trent Farmers' Club, of which he is the President; Mr. Page a copy of Capt. Alexander's "*Soils of East Suffolk*, considered geologically;" Dr. Daubeny a copy of his "*Three Lectures on Agriculture*;" Mr. Shaw a copy of the last number of the *Farmer's Magazine*; and Dr. Spry transmitted to the Society from Calcutta a copy of the new volume of the "*Transactions of the Agricultural Society of India*."

A specimen of Professor Henslow's mode of arranging the specimens of wheat was submitted to the Council, and received their approval.

The president and council having adopted the subjoined queries, and resolved that a copy should be transmitted to each member of the society, for the purpose of obtaining an accurate statement of facts on the nature of the prevailing epidemic among cattle and other stock, the secretary is directed to beg the favour of a reply to any of these queries by the 1st of March; and to signify on the part of the council, that gentlemen who will be kind enough to furnish the society with such replies, are particularly requested not to state anything that has not come under their own actual observation.

QUERIES FOR INFORMATION ON THE NATURE OF THE PREVAILING EPIDEMIC AMONG CATTLE AND OTHER STOCK.

1. Has the epidemic appeared among your stock?
2. If not, has it prevailed in your neighbourhood, and how near your own farm?
3. If your stock has been affected by it, when did it first make its appearance, and in what kind of stock did it first appear, and to what other kind of stock has it extended?
4. In what parish and county is your farm situated?
5. Is its general character flat or hilly?
6. If flat, is your farm screened? and if among hills, is it on a flat or an elevation? is the situation dry or damp, wooded or open?
7. What is the nature of your surface-soil and substratum, and are there any rivers, ponds, or marshes in your neighbourhood?
8. What kind of weather was it when the epidemic began, and what was the prevailing wind?
9. Had the animals attacked with the disorder been in communication with any other animals which might have been diseased at the time? If they had, what was the nature of the communication?
10. Had the animals travelled along a public road, or been herded in any place where diseased animals might have been herded, or been attended by any person who might have been the means of communicating the disorder, either from having attended animals under disease or from any other cause?
11. Were the animals, when taken, housed or out of doors; in what condition were they; how had they been fed, and what was their age?
12. Did young or full-grown cattle appear to be most subject to the disease?
13. In what way did the disorder first appear, and in what time after the supposed infection?
14. Was the disease most frequent in the month or in the feet; and when both mouth and feet were affected at the same time, in which did it begin first; and in what kind of animals was the disorder in the feet most prevalent, and in what kind that of the mouth?
15. Are there any cases in your own stock, or in your immediate neighbourhood, in which an animal has been affected a second time?
16. How many such cases have occurred within your own knowledge?
17. In any case in which an animal has been affected a second time, has the disorder appeared in a mitigated form, or with its usual severity?

18. In any such case, state whether the first attack was peculiarly severe or not?

19. In what manner have the animals been fed, and what has been their medical treatment?

20. How many of each kind of animal died in proportion to the number affected, and what were the appearances after death?

21. In cows, has the quantity of milk diminished when the udder was not affected? In those where the udders were affected with inflammation, has the milk returned or ceased altogether?

22. Have females, when pregnant, or when suckling their young, in any description of stock, appeared to be exempt from the disease, or to have had it in the usual form, or with more or less virulence?

23. Has the disease appeared to have had any effect in producing abortion?

24. In any description of stock have there been any instances of the produce of females affected with the disease, shewing it at the time of birth?

25. When newly-born animals have been affected with the disease, in how many days after birth has it appeared?

26. Have there been any instances of any animals suckling infected cows having escaped the disease?

27. Has it appeared in the feet of sucking animals?

28. Have any of the cattle or other stock been attacked with cutaneous eruptions during or after the disease?

29. In what state or condition has it left those that recovered from mild or virulent attacks?

30. Have any of the horses on the farm or premises been attacked by any peculiar disease before, during, or since the cattle epidemic?

31. Have they been attacked by the ordinary influenza or distemper?

32. At what time did the epidemic seem to disappear from the farm?

AGRICULTURAL QUERIES.

ON DRAINING.

SIR,—I am anxious to learn, through the medium of your magazine, to which I am a subscriber, whether practical and scientific agriculturists are agreed in opinion that Elkington's system of draining, as advocated by Messrs. John Johnson and George Stephens, both printed in 1834, has become obsolete, in *all cases*, since the introduction of Mr. Smith's (of Deanston), the Essex system, as mentioned by Professor Lowe, in his *Practical Agriculture*, third edition, published in 1840, page 195—by Mr. Morton—and by several other of your correspondents—who appear to hold an unity of principle, though they have different methods of carrying it out;—or are there two principles for two objects—the one for intercepting water which is retained in reservoirs much below the surface—and the other for water retained in the soil, or on its surface? Mr. Smith's opinion is directly adverse to the first of these; but when I read such high authorities as “*British Husbandry*” (though in it, it is said, vol. I., note, page 440, “Nor is his (Mr. Elkington's) system to be implicitly trusted,” &c., &c.) and Professor Lowe's, both of whom lay their foundation on this system, together with the two authors first mentioned, I hope I may be pardoned when I acknowledge that I feel some doubt, which I now seek to have removed, regarding the perfection of the frequent drain system in all cases.

I hope I may not fall under the imputation of being troublesome in begging some of your kind and well-informed correspondents to hold out a

beacon by which I may find my way out of the path of perplexity which I am now in, as to the only principle of draining, with the nearest approach to a certainty of success we mortals can expect, without taking expenses into consideration.

May I be allowed to add, that it appears to me that Elkington's method saves expense, but is uncertain—that Smith's is expensive, but efficient?

I am, sir, your obedient servant,

Feb. 14.

TYRO.

ON HOUSE FEEDING SHEEP.

SIR,—I take the liberty (through the medium of your valuable Magazine,) to put a few questions, to those of your readers who are competent to answer them, relative to the *House Feeding of Sheep*. This is an improvement in rural economy, which I believe has been but lately introduced, and I, in common, no doubt, with many others, have read with interest the details which have, from time to time, been published respecting it, and waited with anxiety for a more copious exposition of the minutiae of the practice. This will, I trust, be deemed a sufficient apology for intruding on the notice of the public at this time. I would wish to learn:—1st. Whether the plan is applicable to all seasons and situations? 2dly. How much space each animal ought to have? 3rdly. How many sheep it would be proper to place in one shed? 4thly. Whether the mutton is considered so fine flavoured as that of sheep fattened in the open air?—and 5thly. What is the comparative difference in the time of fattening between this and the usual plan, supposing the sheep in both cases to be in equal condition, and fed precisely on the same quantity and kind of food.

If any of your numerous correspondents could give a reply to these questions, and likewise add any other useful information respecting this exceedingly important topic, they would, I am convinced, confer no slight favour on the more intelligent portion of the agricultural public; and at the same time greatly oblige, your obedient servant,

Dorsetshire, Jan. 14.

A YOUNG FARMER.

P.S. Whilst I am writing, I will take the liberty to inquire whether Swedish turnips are generally considered a cheap, and at the same time, wholesome food for horses, and what ought to be the relative quantities of hay, corn, and Swedes, per week, for each horse?

ON PIGEONS' DUNG.

SIR,—I shall feel obliged if, through your excellent paper, any of your readers could inform me whether pigeons' dung can be used for the purpose of manuring land; in what quantities per acre to be used, and whether better adapted for grass, or land under tillage; and for what crop, or whether it ought to be mixed with any other substance?

I am, Sir, your obedient servant,

Feb. 16, 1841.

A CONSTANT READER.

SIR,—Being a subscriber to, and constant reader of, your Magazine, I have, upon several occasions, perused the accounts of experiments relative to the stall-feeding of bullocks and sheep;—the latter to me is certainly new, although I have no doubt of its practicability.

The immense quantity of food stated to be consumed by the animals, cannot, if I am right in my calculation, possibly pay the cultivator, who is supposed to be remunerated in some way. It would,

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therefore, be conferring a great favour to many individuals, if the expences of such methods were published with the statements; and to none more than, your humble servant,
RUSTIC.
Maidstone, Feb. 8.

SIR,—I should feel extremely obliged if you would favour me with a reply to the following queries in your next paper, viz. :—

"How much wheat is it computed that England, Ireland, and Scotland consumes per day, or per week, in qrs.?" Also,

"What quantity of wheat is called a fair average crop?"

Waiting your reply,

Sir, your obedient servant,

Mark-lane, Feb. 18.

G. J. P.

If you could favour me with the quantities of quarters consumed of barley and oats, and what is called a fair average crop, I would feel obliged.

SUDBURY FARMERS' CLUB.

We stated in our last week's paper that the introductory lecture on land-draining was delivered at the Town Hall, Sudbury, on Thursday, the 4th instant, by Mr. Thomas Hawkins, of Assington. The following is the substance of that gentleman's observations:—

As a good deal of discussion is going on amongst farmers as to the best method of draining land, I am anxious to have the opinion of the club whether we might not use tile instead of haulm and straw in constructing the drains; and if I can show, as I think I can, the little difference in a pecuniary point of view, and the great advantage in every other relation, it may not be undeserving the attention of the meeting.

In speaking upon this subject, my observations will apply strictly to the surface water; as, where land is wet from springs, the drains often require to be cut in a different direction.

The plan I have adopted is, to get all the parallel drains I possibly can into one main or leading drain; next, to get a good fall for the water, having the ground perfectly level between the drains, which I think of great importance in facilitating an equal draught; otherwise, if the land inclines, the surface soon becomes upon a level with the bottom of the drains, and the water only filters from one drain to another, instead of draining equally from the centre.

Upon this principle, I think the direction of the drains ought to vary as the field inclines; and not along the side of the hills, unless there are some geological formations in the soil. The main or leading drains ought to be two or three inches below the others: in fitting the two together, the parallel ought to curve a yard or two in the direction of the current in the main, and by cutting a corner off two tiles, they will fit as nicely as the leading into the main pipe of the gas-works here.

There is a new system exciting some interest amongst agriculturists, called furrow-draining, which I think can only be practised where the surface is flat, or where the land all slopes one way; but the unsightly appearance of high-backed ridges or stetches would not be tolerated by the Suffolk farmer, to say nothing of heaping the soil on the middle by a continual gathering of the stetch in ploughing.

In comparing straw and tile draining, I shall take the one most in use out of the number I have mentioned this evening; which is, to dig one

spit with the broad and one with the narrow spade, filling the narrow about five inches with straw or haulm, leaving six inches at the bottom for the water to run in, which I shall estimate as follows, at 160 rods per acre:—

Digging 8 score rods 20 inches deep and			
5 yards apart, at 4s. per score	1	12	0
Haulm or straw for filling the same....	1	0	0
	<hr/>		
	£2	12	0

Digging 4 score rods 36 inches deep and			
10 yards apart, at 7s. per score.....	1	8	0
1,200 tiles and soles.....	1	16	0
	<hr/>		
	£3	4	0

Difference..... 0 12 0

In estimating the expense of tiles. I think I have a right to assume Mr. Beart's price, as I am sure tiles can be made as cheap in this neighbourhood as at Godmanchester—I think cheaper.

If we look at the permanency of the tile, I need not trespass upon your time in proving the 12s. per acre well laid out. The other continually wants patching, and generally requires to be completely re-drained every ten or twelve years; the drought often cracking the land below them in summer, which, after rain, holds a great deal of stagnant water in the soil, and the perishable material used in filling causes them to decay, particularly where there is but little fall.

As to the deep working of the soil, I am of opinion that nothing would increase its productiveness and alter its texture in this neighbourhood, more than *subsoil ploughing and deep draining*. Objections have been made to the latter, by supposing the land would cap over them, and, from their depth, the water not percolating freely to the drains. This, I am sure, is an erroneous idea; as I can prove that land will dry quicker where the drains are 36 inches deep and ten yards apart, than where only 20 inches and five yards.

In speaking of the subsoil plough, although I have now been at it four years, I cannot make up my mind which is the most perfect method of performing it; on heavy land it ought to be done across the drains, when there is some difficulty in shutting up the furrows, and some little expense in levelling the land afterwards, which ought not to be incurred.

Messrs. Ransome, of Ipswich, have recently improved the Kent turnwrist plough, making it both simple and easier of draught, but sufficiently strong to plough any of our land. I have asked them to be kind enough to send me one which, by turning the furrows all one way, leaves the land level, saving those little items; and which appears to be a more correct plan. When I have tried it, I shall be happy to report thereon.—*Essex Standard*.

THRASHING MACHINES.—The question as to whether thrashing machines are exempt from toll, has very often been brought before the magistrates and decided in the affirmative. At the Wellington (Salop) petty sessions last week, however, the matter was placed in a somewhat new light. Richard Astley, the collector of tolls at the Walton gate, appeared to answer a summons for demanding and taking toll, for a thrashing machine, from William Jebb. Mr. F. Webb, of Shrewsbury, the lessee of the gate, attended on behalf of the collector, and produced the opinion of Mr. Blick, of the Middle Temple, in which he says that a thrashing

machine is not an implement "*ejusdem generis*" with ploughs and barrows, within the meaning of the exempting clause in the general turnpike act. Mr. Webb likewise referred the magistrates to the clause stating that no exemption shall be claimed or allowed unless the wheels are 4½ inches or upwards. The magistrate was of opinion that no person was entitled to the exemption unless the wheels were 4½ inches and upwards, and accordingly dismissed the case.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

SIR,—My letter, published in the Farmer's Magazine, December, 1839, has been the cause of several applications for an account of the breed of cattle called short-horns. Instead, therefore, of writing to each individual enquirer, I take the liberty of requesting your publication of the accompanying account, which has been obtained by me from what I have considered the most authentic sources, and, if incorrect, the public as well as myself will be greatly obliged by other and more extensive information.

Mr. Geo. Coates is now about publishing a fourth volume of the herd-book—of the improved short-horned cattle—and it is hoped and trusted that the pedigrees sent him will be true and genuine, for it is well known that cattle are fudged on the public as such, when they have little pretensions to derivation from the originals, or the herds of Messrs. Collings.

I am, Sir, yours obediently,

HENRY COTTRELL.

Rhodyate Lodge, Congresbury, Bristol, 1841.

That the short-horns are not "a breed of yesterday," it is very evident from the best authorities. Mr. Bates informs us that St. Hugh Smythson's family, the predecessors of the first Duke of Northumberland, who lived at Stanwix, Yorkshire, near the fens, were eminent for their cattle *two hundred years back*.

The late Lady Collingwood's grandfather possessed this breed of cattle at Newby, near Ripon, Yorkshire, and they were also eminent *two centuries back*, and that it was from this stock Sir William St. Quintin, of Scampton, near Malton, Yorkshire, began his breed. The bulls, called the Studley bull, Masterman's bull, Lakeland's bull, and Mr. James Brown's red bull, were directly descended from this tribe.

Mr. Michael Dobinson, of Whitton Castle, had this breed of cattle above one hundred years ago, as reported by Mr. George Cully in his treatise on domestic animals, and as the best in his early days.

Wherefore, surely, the title of short-horns has been long enough in possession, to make it a good marketable, as well as a holding title.

Many years back there was great emulation in the breeders of short-horns, and amongst them Mr. Milbank, Sir William St. Quintin, Sir James Penniman, and others were great enthusiasts, but it is supposed Sir William St. Quintin was then the great cause of improvement, having made several experiments with cattle, apparently of the same species, which he caused to be imported from Holstein, and it is believed that the bull Hubback sprang from these successful experiments, being bred from Sir James Penniman's stock, derived from Sir William St. Quintin's, and although doubts, surmises, stigmas, and other such-like valuable inuendos have been cast at the purity of

this bull's short-horn blood, yet it was the firm opinion of Mr. Charles Colling that he possessed not one drop of Kylee or other blood, but that of pure short-horn, for such was the Holstein importation.

And now we come to the period of the Collings.

About the year 1783, Mr. Charles Colling, presuming it would be a good speculation to introduce an improved herd of cattle, he industriously set about selecting the best he could meet with, viz., Favourite or Lady Maynard, Young Strawberry, Duchess, Haughton, the grandam of Cherry, the predecessor of Old Daisy, Magdalena and some others; and by reference, to his pedigree, we may judge their offspring, Foljambe and Phoenix, he then considered his superiors.

His brother, Mr. Robert Colling's here was also either directly or remotely from this same grand source—Hubback.

Mr. Charles Colling announced his intention of selling off, and by auction on the 11th October, 1810, the average amount thereof was about 155l. His bull Comet fetching the great price of 1000 gu.

Mr. Robert Colling, finding this sale turn to so good an account, determined to follow his brother's example, and in 1818 he had his final sale, the average of which was about 127l.

By the prices given at Mr. Charles Colling's sale, it appears the public estimation was in favour of his cattle, and it is believed it happened from his acute and superior skill in adopting a cross with this very excellent selection, and it was thus made. Mr. George Coates, the late author of the herd-book, with whom Mr. Charles Colling was intimate, informed him that he had purchased for Col. O'Callaghan of Heighington, near Darlington, two Galloway polled cows, one of which was afterwards put to a bull of Mr. C. Colling's, called Bolingbroke, and in due time produced a bull calf (called O'Callaghan's son of Bolingbroke) which, when a few days old, became the property of Mr. C. Colling, and was eventually put to Old Johanna, one of his short horn-cows, and she had a bull calf which was named grandson of Bolingbroke.

From this grandson of Bolingbroke and his cow Phoenix, a daughter of the before named favourite, or Lady Maynard, was bred the celebrated cow Lady, who at 16 years old was sold for 206 guineas, with her daughter Countess, 9 years old, for 400 guineas; another daughter, Laura, 4 years old, for 310 guineas; her granddaughter, Celina, 5 years old, out of Countess, for 200 guineas; and another granddaughter, Cora, 4 years old, out of Countess, for 70 guineas; and her son Major, 3 years old, for 200 guineas.

And so confident was Mr. C. Colling of the superiority of *this* tribe, that he offered, in conjunction with Mr. Booth, to show for 1000 guineas, Lady Celina and Countess, against any three cows in the kingdom.

The celebrity of this tribe is still as high in the estimation of the public, for at sales in 1839 nine cows averaged 95 guineas, one of them 320 guineas; fifteen cows averaged 99 guineas, one of them 200 guineas; and twelve cows averaged 106 guineas, one of them 300 guineas—all full of this cross.

These cattle are perhaps erroneously called Durham's. Mr. Charles Colling did not adopt any local name; but considered his whole herd short-horns improved; wherefore the oldest breeders from him have thought the most appropriate appellation to be, improved short-horns.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR FEBRUARY.

In most previous corresponding periods of the year, we have called the attention of our readers to the steady fulfilment of the "fill ditch" notoriety of the second month in the Calends; but, on the present occasion, we have to notice as great a number of violent and extreme atmospheric changes as ever fell to our lot to record. At the commencement of the month, the frost throughout the United Kingdom was almost unprecedentedly severe; so much so, indeed, that inland navigation was rendered impossible, while travelling on common roads, from the immense quantities of snow which had fallen, was not performed without the utmost difficulty; hence, the farmers, and most other classes of the community, had to contend with a combination of circumstances which were productive in some instances of serious inconvenience. However, the wind, which for nearly three weeks had blown from the north-east and east, suddenly veered round to the southward on the morning of the 11th, which speedily produced a very rapid thaw in all quarters, and has been of great advantage to agriculturists in general. The fine genial rains which have since fallen have had a most extraordinary effect in causing a speedy dissolution of the snow, and likewise greatly benefiting the whole vegetable creation, which is now rapidly assuming its so much wanted appearance. In taking a retrospective glance at the young wheats, we have much gratification in being enabled to allay those fears which were at one period entertained respecting them; and the importance of the subject having induced us, as is our invariable custom, to make a personal examination of them in most of our great wheat growing counties, we have arrived at certain conclusions, upon which the most implicit confidence may be placed. Throughout Essex and a large portion of Kent, including Sussex, the appearance of the fields now is that, to use a technical phrase, of a "newly mown lawn," and even in those situations generally considered unfavourable for this valuable description of produce, not a single well-grounded complaint can by possibility be made; but in Cambridgeshire, Lincolnshire, Leicestershire, Northamptonshire, and Norfolk, a slight deficiency of plants has been found to exist on those lowlands which were inundated by the floods a short time since. From our western and midland districts, but more particularly from Warwickshire and Devonshire, our accounts are of an equally satisfactory nature: hence, it may be safely inferred, taken as a whole, that the vague rumours which have been set afloat have no real foundation, and that the future prospects of our farmers are quite as cheering as could be reasonably anticipated. As to ourselves, we never had any serious misgivings as to the wheats, notwithstanding the almost unusual severity of the weather during the winter, from the well-attested fact of the plants being the most hardy of any description of corn; besides, whilst the cold winds prevailed, they were mostly covered to the depth of from three to nine inches by the heavy falls of snow, which latter were of immense advantage to the growers. Suffice it, therefore, for us to add, that when we compare the appearance of the crops with that noticed last season, we honestly and candidly confess the balance is decidedly in favour of those which have now claimed our attention.

The proceedings in the fields during the month's conclusion were marked by those of extreme bustle

and activity, and much greater progress was made in ploughing than is ordinarily observed. Generally speaking, this department of rural economy is extremely backward, but not more so than is warranted by the obstacles with which those immediately connected with it have had to contend. The soil has been found in a high state of culture, and has worked remarkably well both in the highland and lowland districts. No intimation has reached us of any grain having been as yet sown, either broadcast or by the drill system; yet there is ample time for its conclusion, the time allotted for which not being until the latter end of March.

The great question, whether the stocks of wheat of home produce in the hands of our growers will prove sufficiently extensive to meet the wants of the consumers, without any larger imports from abroad, until the harvest be gathered, has been again mooted. Aware, as we are, that an attempt has been made to underrate its quantity, we have studiously endeavoured to collect the best information respecting it; and we can readily affirm that the supplies are more extensive, by fully one month's consumption, than in February, 1840, while there are nearly 200,000 qrs. of free foreign in warehouse in the various outports, most of which is of very superior quality. Again, it should be borne in mind, that the excess of oats and barley, most of the latter of which is available for bread, is acknowledged to be great. As to any scarcity, we are not under the least apprehension respecting it, and moreover conceive that speculation in foreign corn for British consumption, will not be carried to that extent as we have had frequent occasions to notice. It is also to be observed with great pleasure, that the culture of wheat in this country has been progressively on the increase since 1838; while it is admitted on all hands, that the number of acres under that culture is greater this year than during the whole of the present century. What grounds, then, we will venture to ask, can be found for even surmising that any deficiency exists, or that prices will be materially higher? Again, is it to be supposed for one moment, that were there any prospect of any decided improvement, that our foreign advices would continue so uninteresting as those which are almost daily coming to hand? The undeniable fact is, that scarcely any room is left for speculation, and that much caution will of necessity be observed by parties engaged in the corn trade.

The intelligence from our provinces intimates that in some of the principal markets unusually high currencies have been demanded for the finest parcels of foreign wheat, free of duty, owing to some of the holders being of opinion that enhanced rates will be realized a short time hence. With regard to English wheat, this article has been in increased inquiry, and the best qualities of both red and white have fully commanded an improvement of from 2s. to 4s. per quarter, and most of the samples have been cleared off speedily after coming to market. There has also been a better inquiry for the middling sorts, at a rise of from 1s. to 2s. per quarter. Bonded wheat, the supply of which has been scanty, has experienced scarcely any attention, and its prices have remained next to nominal. Very little barley has been brought forwards, yet the trade with all, except the best malting, has been in a depressed state, at barely, but at nothing quotable beneath, late rates. Superfine malt has been in free sale, while all other sorts have proved a mere drug. The great disproportion between the value of barley and malt is now

attracting the attention of the dealers, and an equalisation is looked forward to. The limited state of the supplies of oats has produced a slight re-action in the demand for them, and an improvement of from 6d. to 1s. per quarter has been obtained for the best descriptions of Polands and feeds. It is also the generally received opinion that as the shipments from the different Irish ports to England have been very small for some time past, and as sufficient quantities cannot be received during the next fortnight to keep pace with the demand, an additional advance, though not of any moment, will take place. The best hard beans and boiling peas have gone off freely; but other kinds have barely maintained their position. An advance of 3s. per 280lbs. has taken place in the value of the best flour, with a ready inquiry.

We regret to learn that the epidemic has been raging with the utmost violence amongst the cattle in different quarters, and many graziers and flock-masters have suffered the most severe losses. The early lambing season, notwithstanding the severity of the weather, has been productive of a fine fall of strong lambs, and scarcely any losses, from the great precaution taken by the owners, have been noticed.

In Scotland thrashing has gone on briskly, and most of the markets have been well supplied with grain, mostly of good quality, while extensive breadths of land have been ploughed up. An active demand has existed for wheat and oats, and the quotations have improved from 6d. to 1s. per quarter, but in other corn no alteration has been noticed.

Quotations of wheat keep up in Ireland, and the low value of oats at Mark Lane have materially checked the inquiry for most grain, but the prices have been well maintained.

The following is our usual monthly statement of the supplies and prices of fat stock, exhibited and sold in Smithfield cattle market.

On most occasions the receipts of good beasts and sheep have been very scanty, and the inquiry for them has been steady, at high prices; while the out-of-condition sorts of beef and mutton have commanded scarcely any attention, with a numerous attendance of buyers.

The supplies of beasts have amounted to 11,230, of sheep and lambs, 94,100; of calves, 823; and of pigs, 2,380; while the prices have ranged as follows:—Beef, from 3s. to 5s.; Mutton, 3s. 4d. to 5s. 4d.; Lamb, 5s. 6d. to 6s. 4d.; Veal, 5s. to 6s. 2d.; and Pork, 4s. to 5s. per 8lbs. to sink the offals.

A STATEMENT AND COMPARISON OF THE SUPPLIES AND PRICES OF FAT STOCK, exhibited and sold in SMITHFIELD CATTLE MARKET, on Monday, February 24th, 1840, and Monday, February 22, 1841.

	At per 8lbs. to sink the offals.			
	Feb. 24, 1840.		Feb. 22, 1841.	
	a. d.	s. d.	s. d.	s. d.
Coarse & inferior Beasts	3 0	3 2	3 4	3 6
Second quality do.	3 6	3 8	3 8	3 10
Prime Large Oxen.....	3 10	4 0	4 0	4 6
Prime Scots, &c.....	4 2	4 8	4 8	5 0
Coarse & inferior Sheep	3 2	3 6	3 8	4 0
Second quality do.	3 8	4 2	4 2	4 6
Prime coarse woolled do.	4 4	4 6	4 8	5 0
Prime Southdown do. .	4 8	5 0	5 2	5 4
Lambs.....	—	—	5 8	6 4
Large coarse Calves ..	4 8	5 0	5 0	5 4
Prime small ditto.	5 2	5 6	5 6	5 8
Large Hogs.....	4 0	4 8	4 2	4 6
Neat small Porkers ..	4 10	5 0	4 8	5 0
SUPPLIES.				
	Feb. 24, 1840.		Feb. 22, 1841.	
Beasts.....	2,940		2,209	
Sheep and Lambs	19,200		17,190	
Calves.....	170		81	
Pigs.....	412		603	

The arrivals of slaughtered meat up to Newgate and Leadenhall markets from Scotland and different parts of England have been on the increase, they having comprised from the 1st to the 22nd, 190 carcasses of beef, 1,300 ditto of mutton, 210 ditto of veal, 2,140 ditto of pork. Trade with all kinds of meat has ruled heavy, at the following prices, viz.:—Beef, from 3s. 2d. to 4d.; Mutton, 3s. 6d. to 4s. 6d.; Veal, 5s. 4d. to 6s.; and Pork 4s. to 5s. per 8lbs. by the carcass.

DURHAM.

The weather for the last two months has been remarkable for its severity, attended with heavy falls of snow. The sudden thaw on the 15th and 18th ult. has done considerable damage in this county; the shipping interest has sustained serious losses, from the accumulation of ice and floods, but the low grounds were not flooded to that extent which we have frequently witnessed. Notwithstanding the extreme severity of the frost, the young wheats assumed (at the disappearance of the snow) a most vigorous and healthy appearance; since then the weather has been of that severe character, with a strong piercing easterly wind, which deprived and drifted that covering of snow from the fields so essential for the preservation of wheat, turnips, and clover. We are sorry in having to observe that wheats are presenting a very opposite appearance than what they were a month ago; turnips have also suffered severely in exposed situations. The frost has penetrated into many situations to potatoes where they were supposed to be in security, and large quantities have been rotted by the severity of this visitation. The plough has been impeded for an unusual length of time; this important operation is very far in arrears, and strong clayey stiff soils will scarcely have sufficient time to mellow and pulverise for the reception of the seed. The winter has been exceedingly favourable for manuring grass land, carting manure, stones, &c. Fodder has been in great request, and disappeared very rapidly. The thrashing mills have been kept in motion, notwithstanding markets have been scantily supplied with grain; stackyards look thin; the wheat turns out a very short crop, but fine in quality. The rot amongst sheep is very prevalent, many extensive graziers are compelled to slaughter the whole of their breeding ewes. This disease may be dated from the extreme wetness of the summer and autumn in 1839. We are sorry in having to report that the epidemic amongst cattle, sheep, and pigs, is still prevalent; sheep that have been affected this most inclement season have literally gone to bones; they ought to be kept in sheds, well bedded, and turnips cut for them, small slices ought to be put in their mouths; this remark also applies to cattle. We are of opinion that tar will not prevent this disease, for we had out of forty-eight short-horned cattle, forty-seven of which took the epidemic, notwithstanding tar was rubbed down their noses every other morning; about one-half of this number had medicine at the first appearance of the disease, the remainder had none; we were not able to distinguish any difference whatever with regard to their recovery: we found in byers that ventilation and cleanliness were very essential in the disease. It has seldom proved fatal where animals have had dry and warm lodging, and severe purgatives avoided. From the inclemency of the season a great deal of out-door work has been suspended, and numbers of hands have been out of work, and in many instances suffered great privations; the railways have been laid in,

but since the thaw they are beginning to resume their labours. The corn markets are advancing. Wheat, 7s. to 8s. 6d. per bush.; Barley, 3s. 6d. to 4s. 3d.; Oats, 2s. 9d. to 3s. 6d. The fat stock markets keep up. Beef, 7s. to 7s. 6d. per stone; Mutton, 6d. to 7d. per lb. Lean stock it is expected will be high, from the scarcity of store cattle in the country.—Feb. 17.

CALENDAR OF HORTICULTURE FOR MARCH.

What we said in our last calendar, at page 155, we might now repeat, that "the weather having now become mild," there is hope by the 1st of March of "*being able*" to set to work in the garden.

As a matter of instructive chronology, it should be remembered that, after the mild interval which commenced about the middle of January and continued to its close, frost returned, and the 4th of February witnessed a great depression of temperature; this, in some parts of Surry, as a horticultural friend assured us, amounted to 26 degrees, that is, the mercury fell to 6° of Fahrenheit. Our own instruments west of London marked only 13° of frost—the minimum of the 3rd at London is quoted at 18° of Fahrenheit. But the most serious visitation of the season was the prodigiously violent and parching wind, east to north, which blew unceasingly, much to the perplexity of the gardener, who had all his coverings driven off without the power to replace them. Thus temperature was reduced ten degrees in stores, vineries, and pits.

Snow was a concomitant in the east; but in Berkshire, and other parts west of the metropolis, the mere sprinkling which occurred on the 2nd February vanished, and left the crops undefended. The most curious phenomenon of the winter was the perfect glazing of the ground during four entire successive days; this had its origin in a small shower early in the morning of the 8th, with five degrees of frost, and, as low temperature continued till the 11th, every road, path, or gravel walk continued glazed. We should like to know whether this was generally observed.

The frost ceased on the 11th, after a dense haze, and change of wind to south and south-west. The first rain of any consequence commenced on the evening of the 15th. As yet, we have observed no destruction of the roses, laurustinus, arbutus, &c., among shrubs; or of broccoli, cabbage, and other greens, among vegetables: and now we have a right to hope that, the remainder of February proving rainy—according to the good old saying—*March* will be introduced with drying airs, and welcome our readers with those prognostics which afford promise of a genial spring—alterations of fructifying showers and warm sun. Of late years we have experienced parching and burning days, and cold frosty nights, quite inimical to horticulture. March is, or ought to be, one of the busiest months of the year; but time is not lost if most of the great operations for the summer be deferred till the equinox—the free working condition of the land being the best director.

IN THE VEGETABLE GARDEN

Sow Beans: long-pod, Sandwich, and Windsor, in the first and third weeks.

—Peas: early Warwick, Charlton, Prussian-blue, dwarf imperial, and Woodford's,—the scimitar at the close.

Sow Lettuce: where intended to remain, and to be thinned to proper distances; first, the hardy cos, and at the end the grand admirable, or union cabbage.

—Radish: the salmon, short-top, red and white turnip varieties—the two last the latest.

—Small salad: some on the floor, or in boxes of the vinery, others in the open ground. It is a good plan when sowing under glass, to scatter the seeds thickly on a moist surface, and to press them with a board evenly, giving them a sprinkling of water. They will vegetate very soon: after the plants are fairly up, a little fine earth, sifted over them to the depth of 1-8th of an inch, will secure the position, strengthen vegetation, and obviate that disagreeable circumstance which almost always results from covering the seed: close matted as they are, the plants raise a mass of earth, which it requires nice manipulation to remove.

Sow spinage of both sorts: but, if it be liked, prefer the white or sea-kale beet; the green membrane of the leaf becomes a delicious vegetable, and the stalks boil well, but the heart shoots are very fine.

—Parley: the best double curled,—twice or three times.

—Asparagus: for permanent beds; or thickly, for raising forcing plants.

—Sweet-herbs: chervil, basil, fennel, thyme, late in the month.

—All the spindle-rooted plants: red beet, the small deep purple is the best; hollow-crown parsnip, early horn, white rooted, and Surrey carrots.

—Turnips: the Dutch and early stone—mere sprinklings of either or both.

—Onions: the Reading or Spanish, Strasburg, &c., and London leaks.

—Sea kale: in sandy deep earth, slightly manured with wood-ashes and common salt.

—Cabbage: for summer—savoy for autumn, a little broccoli, and Brussels sprouts. Of the last, the most delicious of proliferous brassicæ, we must cite a few original remarks.

Brussels sprouts—a sub-variety of the open-headed sprouting cabbages, much cultivated in Brussels, and rendered famous by the description given of them by Dr. Van Mons, who, (in Vol. III. of the Horticultural Transactions) says:—"If this vegetable be compared with any other which occupies as little space, lasts as long, and grows as well in situations generally considered unfavourable—such as between rows of potatoes, scarlet runners, or among young trees, it must be considered superior to most others."

Van Mons further says—"The seed is sown in Spring, and on a frame, so as to bring the plants forward; they are then transplanted into an open border, with a good aspect," and by successive sowings they contrive, in Belgium, to supply themselves with this delicious vegetable full ten months in the year.

In a word, by three sowings and six transplantings, that is, by removing half the plants at a time, successional supplies may be had for many months. In general, it is customary to take off the central head, in order to bring forward the small lateral heads, and this practice will answer in the growing months; but late in autumn, and throughout the winter, it is more prudent to strip the stalks for use, leaving the central sprout at top untouched, in order to preserve the plant; finally, when the centre is cut, the plant is destroyed, and should be removed.

Plant beds of horse-raddish and Jerusalem artichoke; this vegetable may be continued on the same ground, but it ought to be entirely digged up yearly and replanted, otherwise the plantation will not be retained within due limits.

Plant the second crop of early potatoes; cuttings and slips of all the sweet herbs, and of the aromatic shrubs, lavender, rosemary, sage, rue, should be planted; also the bulbs of shallot and garlic, and little onions, raised expressly in the last year, to strengthen by a second year's course: do this early.

Transplant seedling cabbages sown in August; this is the last removal from that sowing.

Earth up all growing crops; level and dress artichoke plantations, and make the ground everywhere orderly and neat; fork and rake asparagus beds.

FRUIT-GARDEN, &c.

The season, notwithstanding the severity of the winter for so long a period, promises to be early; therefore, we presume that the regulation of currant, gooseberry, and raspberry bushes, has been performed in February. Yet if any remain untouched, one of the first operations should be, to prune all the berry-bearing plants, as directed in our last; and then to dust them well by means of a tin dredger, with a mixture consisting of three parts powdered quick-lime, and one part of dry coal soot: these will cleanse the branches. The surface-soils should then be raised by the spade, (pushed almost horizontally) and turned over. Some persons lay three inches of reduced compost dung, from the linings of hot beds, over the surface, with good effect; but we would prefer to do this in autumn, turning it in at this time, but never digging the soil deeply. A scattering of common salt and soot would now be more inimical to insects.

Strawberry beds and rows should be cleared of the old leaves—first by cutting, and then by a wooden rake; after which, the ground may be evened by scattering fine soft loam, mixed with a sixth part of wood ashes, sufficient to fill up the inequalities; the young roots will be encouraged directly, and the ground will thus receive a permanent supply of mild vegetable alkali.

This is the best season to make new plantations of strawberries in all aspects, in order to provide successional crops, from the end of May to that of July. By referring to our Calendar of September, p. 226, concise directions will be found for the preparation of the beds; but the system of planting remains to be noticed. A *three years' course* is the best; it secures the finest quality of fruit, and presents means to keep the ground in fitting condition. In the first year, plant, at proper distances, the strongest runner-plants of last summer; and do not suffer one of them to expand a blossom: call these No. 1. Prepare as many beds, or rows, as the prospective consumption shall indicate. Every year, at this season, or in September, repeat the planting in the same manner for Nos. 2 and 3. In the second Spring No. 1 will blossom and bear; again in the third Spring. This set is to be obliterated, and the ground planted with some vegetable till September, or the following March; thus it will be purified, and prepared for strawberries again. Proceeding in this way with *three* sets of plants, fruit of the first quality the season and land will permit, may always be at command. Every year a new plantation will be made, and one set of the three years' course will be obliterated.

FORCING DEPARTMENT.

Vinery. The fruit of the first in action will be

completely set, and the berries as large as peas, by the commencement of March; each cluster should be carefully but boldly, thinned with sharp pointed scissors. The hand must be steady, and the eye correct; but there is not that danger of obliterating the bloom which many apprehend. We doubt much, also, the value of the high temperature by night (68° to 75°) kept up by some; the educated habits of the tree possess great influence, and certain it is that a vine accustomed to high moist temperature is more in danger from a sudden depression, than one which, by habit, will develop its buds at 50° by the 1st of January.

The *second* vinery, excited in mid-February, should be kept moist and warm till the fruit is fairly set; Nature will then perform the greater part of the remaining duty; for, after equinox, few morning fires will be required.

Pine stove and pits. This is the season of disrooting, and re-potting successions; high, moist temperature (never permitting a check) is the element of the pine-apple.

FLORAL DEPARTMENT.

Prune shrubs and clear away litter; place every portion of the ground in neat and trim condition, sweep lawns, clean and roll gravel walks, renewing the box-edgings.

Sow all the semi-tender annuals in gentle heat; also the best of the hardy annuals, under glass, as time will be gained and less danger of injury from insects incurred. The *young scarlet* geraniums, in propagation pots, should be potted single in loam and leaf-mould, placing them in frames to harden. Dig the quarters, and replant or renew herbaceous plants, leaving spaces for the annuals. Prune roses to well selected low buds; the moss rose, if in loam, which it affects, will frequently produce one straight stem, five or six feet high; and thus, by proper shortening, a handsome standard can be formed.

The *greenhouse* will require air, and the plants more water; many should be repotted as soon as growth shall commence. The young *verbenas* (rooted cuttings) ought to be potted, and protected in frames, previous to bedding out: so should all the *parterre* plants. It will be recollected, that half the best greenhouse plants display themselves in *parterre*; these departments should always be prepared for them. Where soft fresh loam is plentiful, the plots should be utterly renewed with it.

Fuchsia beds ought to be cleared of old stems, and refreshed with a dressing of turfy loam, and leaf-mould. *F. fulgens* succeeds admirably; and so will, no doubt, the new "*Corymbiflora*."

MOWING MACHINE, to A. N.—I have had a mowing machine in use for four years: when sent to me from the Ironmonger's it would not cut. I sent it back to the Ironmonger's, saw his scissors-grinder, and desired him to put it in order, and it has never required any repair since. Mine is a 16 inch, which is quite large enough for one man to use. I could not return to the scythe; I feel it would be like discarding the fork for the fingers. A common labourer has used mine ever since I have had it: the great risk is, people not understanding them, and settling them to cut themselves—not the grass. Let A. N. get a scissors grinder to put him in order, not a man that travels the country, but one who can use a file. If the manufacturers had only taken the trouble to instruct purchasers in the use of this instrument, it would not be in such disrepute. A labourer in my garden does in two hours what used to take my gardener twelve.—POLYPHEMUS.

—*Gardener's Gazette.*

REVIEW OF THE CORN TRADE DURING THE MONTH OF FEBRUARY.

The wheat trade throughout Great Britain, during the last month, has continued in rather an inanimate condition. In the early part of February, the weather was unusually severe, and this circumstance rendered the supplies, every where, uncommonly small; although the previous large stock of flour in some degree made good the deficiency in the quantity of wheat, and rendered the supply equal to the consumption. Since the inland navigation has again been opened, the deliveries of wheat by the farmers have materially increased, and should they soon become more abundant, it is more than probable that declining prices during the spring months must be the natural consequence; for speculations at home cannot be safely made in wheats at their present prices, and the value of all descriptions of grain therefore, must be regulated by the old rule of supply and consumption alone, until something like a correct opinion can be formed of the nature and prospects of the next harvest. Fears were some weeks ago entertained for the young winter wheat plants, and nothing has since then occurred to show whether these fears had or had not any solid foundation; we should hope however that they were groundless, or at all events, that the extent of damage presumed to have been done by the severity of the weather, has been only small. In all seasons about this time, unfavourable rumours, respecting the state of the young wheats, are always put in circulation, and at present certainly the reports respecting appearances in the fields have not, at all events, been followed by any advance in wheat prices, nor have they caused any large orders to purchase abroad as yet to have been transmitted by those English merchants, who usually embark their capital in speculations of this description. We may therefore, with safety, presume that no material injury has been done by the late severe weather, and that the prospect of another abundant wheat crop has not been altered by any thing which has occurred since our last month's review of the state and prospects of the corn trade. Although under these favourable circumstances, the prices of wheat may be subjected to a farther depreciation than that which has already occurred, still there is not the least chance of that depreciation being to any great extent, for under the present flourishing condition of the people generally, no falling away in the general consumption can with any degree of propriety be anticipated. No doubt, for two or three weeks lately, out-door labourers were prevented from following their usual vocations by the almost unexampled severity of the weather, and very great distress was the necessary consequence amongst many thousands of families; indeed destitution, for that short period, seldom has been so extensively exhibited of late years in the United Kingdom. The evil however, disappeared immediately with the cause of it, and one week of open weather restored these matters to their natural state. The inhabitants generally of this great empire are again most abundantly employed, and the wages of labour are fully equal to the expenses of living at the present value of agricultural products. We therefore are perfectly justified in anticipating, at all events, a large demand for wheat for several months to come, and nothing, except too large deliveries of

this article by the farmers, can cause any material decline in its value until, as we have already mentioned, some decided opinion can be formed of the state of the winter wheats.

This general prosperity, in which every class in the community is now largely participating, has its origin alone in the importation of foreign grain being rendered entirely unnecessary by the late most bountiful crop of all articles of agricultural produce, with which these kingdoms were everywhere blessed last harvest time; and the experience of the last six months, when compared with the partial, and in many cases serious inconveniences, which many classes were subjected to at various periods, during the preceding three years, must fully convince, even the members of the Anti-Corn-Law-League themselves of the great and important truth of agricultural prosperity being absolutely requisite for the well-being of British society itself. If the present circumstances of this empire have not, however, made any impression on the opinions of these corn-law repealers, they have, at all events, confirmed the opinions of the working classes generally, that the wages of labour must eventually be regulated by the prices of the necessities of life, and that the terms *cheapness* and *dearness* depend entirely on local and national circumstances. In many parts of our East India possessions, the necessities of life are extremely low, and the natural consequence is, that the wages of free labour are far more than proportionably low. In many instances, the value of 3d. a day, and even lower, is the rate of wages, and the most deplorable wretchedness is the necessary consequence. Here are cheap provisions, and most extensive misery. Coming nearer home, we find the same causes continually producing similar consequences. In Poland, which is admitted to be the richest wheat country in the world, this is, unhappily for the people, far too apparent, and even in France the wages of labour very seldom indeed are equal to more than a half-starving state of subsistence; for, let the prices of provisions be ever so low in that kingdom, wages always regulate themselves in proportion. The British artisans and operatives are now too enlightened to be drawn away from their best interests by the dogmas of the lecturers, on what they call the bread tax. These orators say not one word respecting wages. Even respecting cheap bread, they contradict their own doctrines themselves; for they say, that the entire repeal of the corn-laws would not eventually be attended by any material depreciation in the present average prices of agricultural produce, and in making this admission, they, without intending it, destroy the foundation itself of their doctrines. The certain effect of a free trade in corn with foreign nations would be the destruction of the agricultural interest at home, the destruction of the home market for the consumption of the most valuable part of our manufactures, and the total suspension of every description of national enterprise and internal improvement would immediately follow. Provisions would then no doubt become far dearer than they ever can be, under the existing system of extending legal protection to agricultural industry; for the wages of labour would

not be equal to their purchase in such abundance, as is the case at present, let the prices be what they may. The repeal, in fact, would throw one-half of the people entirely out of employment, and would reduce the other half to the most abject state of misery. A number of the manufacturers no doubt, would, for a time, make large fortunes out of the reduction which they would make in the wages of their labourers, and the British empire would thus become a great workshop for the rest of the world; the workmen receiving just sufficient food to enable them by their labour to fill the pockets of the master, and finally to close a life of wretchedness in its most perfect state. The love for wealth, however, seldom answers the expectations, even of those by whom it is acquired. It has most truly been described as being—

“A wide wasting pest which rages unconfined,
And crowds with crimes the records of mankind,
For wealth his sword the hireling ruffian draws;
For wealth the hireling judge prevents the laws,
Wealth heaped on wealth, nor truth, nor safety buys,
The dangers gather as the treasures rise.”

And these are the pleasures which the master manufacturers anticipate from repeal of the corn-laws. Wealth is the only object of their ambition, and they think, not of the general distress which this mode of obtaining it would spread amongst their countrymen, nor of the final disappointment which the acquisition of it would entail on themselves. The Anti-Corn-Law-Leaguers have, however, since our last review, had abundance of evidence to convince them of their rapidly declining influence amongst their countrymen themselves. Their talents and their time would be far more profitably for the country, and also more pleasantly for themselves, employed, did they direct them to the cultivation of the fields at home, and to the internal improvement of the empire. Here they have an ample and most patriotic field opened for their best exertions, and from sources of this description alone can the people in future be well and productively employed. Here they will find practical quarters for the employment of their minds, and theory will no longer render their labours ridiculous in the eyes of the right-thinking part of the community. The uncultivated portion of the land, chiefly in Ireland, may give food and employment to, we may almost say, double our present population, but for the production of this unbounded advantage legal protection to property, talent, and industry embarked in agricultural pursuits, is absolutely necessary, and herein the corn laws offer not only present, but also great prospective, advantages to the entire population of the United Kingdom. Under their fostering care, capital, to a large amount, is retained at home, which, were the corn laws repealed, would, as long as it lasted, be annually remitted to foreign nations and to foreign states, in exchange for wheat and other necessities of life, from whence it would never return, even in payment for British manufactured goods. This money—during the remainder of this corn season, at all events—will be paid to British farmers for the last year's crop, will be kept in continual circulation at home, from the landlord and farmer to the British manufacturer, and from him to the operative and artisan, until it finds its way into the coffers of the capitalist, by whom it will be again embarked in railways, field cultivation, and many other departments of industry, thereby improving the public wealth, and increasing, in a most abundant manner, the productive employ-

ment of the entire population. To place a trifling addition to our present foreign export trade in manufactured goods—were any addition possible from the repeal of the corn laws, which all experience heretofore completely contradicts, in opposition to advantages so splendid as home improvements must spread among the entire mass of the people—is in every way puerile, if not perfectly absurd, for manufactures speedily perish—indeed, a breath of fashion frequently destroys them—whilst the improvement of the field endures for centuries, and blesses the human race for ages. The Drainage Bill for Ireland, now under the consideration of Parliament, will do more real good to the inhabitants of that portion of the empire than any act which ever passed the Irish or British Legislation. It will bring into cultivation hundreds of thousands of acres of table land, now useless to the people; and the produce of these lands will, before long, render emigration to any extent perfectly unnecessary. The banks of the Shannon are already affording productive employment to the people, and here, as in many other rivers, lochs, and bays, a vast quantity of excellent cropping lands must eventually be reclaimed from the waters. Manufactures must progress with these agricultural improvements, and thus afford another most satisfactory illustration of the great advantage which agricultural prosperity at home universally confers on commerce of every description. In Great Britain likewise a great deal of land still remains in a perfect state of nature, and is consequently entirely useless to the community. Capital alone is requisite for the cultivation of these wastes, and capital will not be wanted if confidence can be placed in its investment being protected by law against its produce being hereafter interfered with by similar products of foreign growth. For these purposes the corn laws are most admirably formed. They afford a fair, and certainly no excessive, protection to grain produced within the United Kingdom, and when, by the elements, any deficiency occurs in our crops, they have the admirable quality of, we may say, repealing themselves, and of admitting foreign grain to the extent which our deficiency at home renders necessary; thus universally preventing the consumers from being subjected either to extravagant prices, or to that allowance of the actual necessities of life. This is practically the state of the wheat trade at the present moment. Prices are sufficiently moderate for the interests of the great body of consumers, and also sufficiently remunerating to the cultivators of the fields throughout the United Kingdom. The corn laws, in consequence of these circumstances, protect the interests of agriculture by a fair rate of duty now, as they lately did the interests of the consumers by a nominal one.

Although two-thirds of the malting season have passed away, still, during that period, very little animation has been observable in the barley trade. The demand, in general, has not equalled the supply, and drooping prices have been the natural consequence of this state of the barley market. The cause of the effect we have frequently alluded to, but till now we have not taken sufficient notice of the yearly falling away, which is taking place in the manufacture of malt itself. This is but too unfortunately the case, and unless some remedy or other be applied to the evil, it must continue to increase, until its extent becomes of serious consequence to the revenue itself. The quantity of malt consumed by the public brewers

is now very little more than four millions of quarters annually, and amongst thirty millions of people in the three kingdoms, the portion of this small quantity to each individual is trifling indeed. In fact, two-thirds of the population cannot afford the use of wholesome beer at all, in consequence of the extravagant expense occasioned by its manufacture; and adulteration consequently becomes not only profitable, but in many cases absolutely necessary, for the due prosecution of their trade, amongst a vast number of the inferior orders of beer retailers. The almost daily convictions for this offence, which are occurring in all parts of England, sufficiently establish the alarming length to which adulteration has been, and now is, prosecuted; nor is there any possibility of putting any effectual stop to it, save by a considerable reduction in the malt duty, for this alone can render these vicious practices not profitable. The injury done to the health of the consumers of deteriorated beer is of very serious importance; but, for the prosperity of the revenue itself, an alteration in the mode of collection, and in the manner of imposing, the malt duty, is becoming absolutely necessary; nor can the Chancellor of the Exchequer much longer delay a full enquiry into the nature and extent of the too-rapidly growing evils in the barley trade generally. Half a quarter of malt would not be a very extravagant consumption to each of the inhabitants of the United Kingdom, and this, at a duty of even ten shillings per quarter, would bring the treasury at least three millions sterling more than can be obtained from the malt duty at its existing most extravagant charge. But if any alteration of this description be of so much importance to the revenue, how valuable must it not be to the great body of beer consumers themselves, and to the proprietors and tenants of light lands, which are best suited to barley cropping. In this latter instance, it would open a wide field for the proper cultivation of large districts of this description of land, which cannot be converted, under the present system, to any useful purpose. To reclaim these lands would increase the general wealth of the empire so considerably, that, after paying for the increased sum paid into the treasury as malt duty, and also paying the full expense, which the increased consumption of beer would render necessary, the landlords and tenants would find their profits amply sufficient to repay themselves large profits also on the capital, talent, and industry which they may have been induced to embark in the increased production of barley. The many thousands of families whom the reduction of the malt duty would place into full and productive employment, but who are now in want of work in many of the agricultural districts, would be rendered active and useful members of society, would be enabled by their increased means of payment to give additional employment to the trading interests, and a general benefit would thus be spread throughout the empire. The production of two-thirds more barley than the maltsters now can use would add largely to the national wealth. It would, as we have said very frequently, give work to three times the number of labourers now employed in barley growing, and thus make them independent in their circumstances, and render them valuable members of the community. The money received by the landlords and farmers for this large additional quantity of barley would be circulated amongst all the industrious classes, would be thus increasing their yearly incomes, and

increasing the consumption of every article, whether it be the produce of the fields, or the handicraft of the manufacturer. In fact, the reduction of the malt duty would be of immense importance to all classes—would improve the revenue at present collected on that article; and, unless to the beer adulterator, it would not injure one interest, nor even one individual in the state. In all financial operations it is a well established fact, that too heavy duties are injurious to the purposes for which they were chiefly imposed. In the malt duty this fact has, in a very particular manner, been proved by the late practice in its workings. When the duty on this most necessary article of consumption was 34s. 10d. per qr., the amount collected from this source of revenue never reached three millions sterling in one year. Two years after the duty was reduced to 20s. per qr., nearly six millions sterling were collected within the twelve months. Within the last two or three years, the malt duty has been again gradually increased to 23s. per qr., and the consequence even already is that little more than five millions of quarters of barley are now manufactured into malt annually, of which the consumption of the public brewers requires very little above four millions of quarters of malt annually, as we have already stated above. In the collection of the British spirit duty the same causes have always produced similar consequences, to the particulars of which it is not necessary to our present purposes to revert, beyond the fact, that in Scotland and in Ireland, where the charge on each gallon is moderate, the duties are collected on every gallon of spirits consumed in those two portions of the United Kingdom; whilst in England, where the duty is outrageously high, being not less than 7s. 10d. per gallon, at least one-half of the quantity consumed is supplied by those pests of society, the smugglers of spurious French and Spanish brandies, and of Dutch gin of the worst quality possible. By this system of extravagant spirit-duty we are compelled to pay a great sum of cash annually to foreign distillers for bad spirits, and the health of the community is frequently put at hazard by their consumption. The revenue is also defrauded by their illegal importers, and the English agricultural interest is deprived of an increased market for the consumption of at least one-half a million of quarters of barley above the quantity now used in the operations of the distillers within the British Empire. To reduce the duty now levied on spirits manufactured in England to 5s., and that on West India rum to 6s. 6d. per gallon, would, in a material degree, remedy the injury which smuggling inflicts on the property of the country; and would likewise completely put a stop to the immorality, which this most debasing custom spreads amongst a vast mass of the people. To permit the rectifiers to use their talents and capital to the best advantage, would also be attended by consequences as important as they would be advantageous to the British community. Were the rectifiers of neutral spirit into brandies permitted to make their article of any strength, a doubt cannot be entertained that British brandies would equal in flavour the best descriptions of French brandies—would excel them far in wholesomeness, and eventually would reduce very largely the consumption of Foreign spirits in the British markets. This, taken in conjunction with the reduction in the duties now levied on Colonial spirits, would, in a most eminent manner, strengthen the

great cause of temperance amongst the people. It would speedily render the vice of drunkenness contemptible, and the equally destructive vice of teetotalism ridiculous. It would advance the votaries of the medium system betwixt these two vices, to a solid mode of action, and it would materially improve the health and add to the happiness of the people generally.

We have the means of supplying within ourselves all the spirits which the nation requires, and our distillers, by a small alteration in the present Excise Laws, profess the art of making their spirits equal in flavour to any manufactured abroad, and far superior to them in wholesomeness. It is to over-taxation entirely that the barley growers in the United Kingdom are indebted for the smallness of the quantity of their produce which is now consumed in the home markets, and it is to the same cause alone that they can attribute the dulness which is now experienced in the sales of barley. To attempt to grow more than the market can take away would be an useless expenditure of capital and of time. The heavy state of the barley market at the present moment is partly occasioned, therefore, by the extensive manner in which beer is now adulterated, and partly by the large quantities of foreign spirits which are illicitly admitted into consumption. So long as the same causes exist must the same effects be experienced, and there is no other remedy which can be applied to this great agricultural evil, than the reduction of the present rate of malt duty by one-half, and the reduction in proportion of the duties now charged on colonial and English spirits. An improvement in the revenue must be the certain consequence, and the consumption of barley may thereby be doubled, or even tripled.

The consumption of oats, occasioned partly by the severity of the weather, was again unusually large during last month; but the supplies having been likewise large during the same period, the increased demand was fully satisfied by the increased quantities which were sent forward for sale in the different markets throughout the kingdom, and prices have consequently rather declined than the contrary. Throughout Ireland and Scotland last season, the crop of this article was exceedingly plentiful, and the quality uncommonly fine, and the different markets in England have been chiefly supplied with oats from these two districts of the United Kingdom. The progress which agriculture is every where so very rapidly making, and the large districts of waste lands which are now annually brought forward into cultivation, must gradually increase the growth of oats, and eventually render us, under every circumstance, entirely independent of any extensive foreign importation of this most necessary article of consumption. Under the influence of the corn laws, and the Irish drainage act, which is at the present time on its passage through the legislature, the future improvements in agriculture in Ireland must be most important indeed; for they will not only provide for the whole of the population labour, productive of most favourable consequences to the general good of the community, but they will likewise furnish them with wages for their labour, sufficiently large to meet their annual expenditure, and to induce them to remain contentedly in their native country. It has long been a general complaint amongst all the productive labourers in Great Britain, and particularly amongst that portion of them who are engaged in agricultural pursuits, that fair

wages for their labour were periodically interfered with by the large influx of labourers from the sister kingdom, who were unable to find employment at home, and who consequently were compelled to find their bread anywhere, and to accept of any rate of wages which they could obtain from those who were inclined to employ them. Of this prejudicial system the British workmen had most just reasons to complain, for in too many instances the wages for their labour were reduced considerably under their intrinsic value, and their families suffered the consequences of this unnatural state of society. By the rapid improvements, however, which are now beginning to shew their important consequences to Irish agriculture, under that most wise degree of protection which the corn laws afford to every department of landed operations, the British labourers may, with great confidence, now look for speedy relief from this interference with their employment, *which is their real property*, and from the great changes which it is periodically causing in their wages. Abundance of productive labour will in future present itself at home to Irish industry, and no man there, under such circumstances, will leave his home to labour in England or Scotland for half wages. These advantages are prospective chiefly, but there are other benefits springing from Irish improvements, which Great Britain already is rapidly reaping, amongst which there is not one more important than the very abundant manner in which Ireland is now supplying with oats the British great markets of consumption. It is an established fact, that for many years now, Great Britain has not been able to produce oats equal to the increased consumption of them; and, had the deficiency not been, to a certain degree, supplied by Ireland, we must have imported largely from foreign nations, and paid them for their agricultural product in the precious metals, which are the standard of our circulating medium. Money is already scarce enough, and quite dear enough, but had the whole quantity of oats, requisite to supply the deficiency in our growth, been imported from abroad, instead of partly from Ireland as has been the case, it is not possible to calculate the extent of evil which would have resulted from this circumstance. Enterprise would have been paralyzed, productive labour for the great mass of the people would have been proportionably limited, and wages would have been reduced far beneath their standard value. There are, however, plenty of means in Ireland to make good the deficiency between our consumption and our growth at home, of oats during, at all events, the remainder of this corn season, and prices thereby will, in every probability, be kept so moderate as to continue the duty on their importation at prohibitory rates, and thus to render specie remittances to the continent, to a certain degree, unnecessary during the same period. The corn laws are thus certainly of much more importance to the working classes, than they are to those connected with agriculture itself; for on their protective influence depend those means, by which they are enabled to obtain living wages; whilst the agriculturist can always raise from the fields themselves, at all events, quite enough to support himself, even were these laws repealed. We repeat, therefore, that there is not one individual in the empire who reaps not great advantages from agricultural protection, and none are more aware of this fact than the operative classes themselves.

The information received from the various corn districts in the Continent of Europe, respecting the

state of the corn trade in each of them, is in due course of post, and, generally, is not very interesting, at this moment, to the corn trade in this country. The complaint universally continued to be made of a great want of animation in the corn markets, though, at the same time, prices had not declined to those quotations which would encourage speculative purchases with a view to the British markets. At Dantzic, Elbing, and Königsberg, this was more particularly the case, for the stacks of Polish wheats, at all of them, were unusually small, and generally they were in the hands of capitalists, who had the means in abundance to hold them, for what the trade called better times. The corn trade is proverbially uncertain, and the foreign speculators, in wheat in particular, may prove right in their conjectures of the import duties becoming so moderate, during the next summer months, as to admit the entry of a considerable quantity of foreign wheat for consumption here, at saving prices, and they consequently are unwilling to part with their property at prices, which would admit of its entry here on the payment of the present rates of import duty. That these rates may be more moderate before next crop can be brought forward into our markets for consumption, is exceedingly possible, even should the coming wheat crop be as abundant as the last one most undoubtedly was, and this opinion is formed in the trade, on the presumption of a want of fine old wheats sufficient for the purposes of mixture with the new samples, being about that period experienced. The deficiency in old wheats, which the two bad crops of 1838 and 1839 have occasioned, cannot be made good by one large and good crop, and therefore a quantity of the best description of foreign may possibly be wanted, let the coming crop be as fine and as abundant as it can be by any possibility. The British corn merchants who employ their capital in operations of this description are, however, not sanguine of the duty being, at that period, so materially reduced, as to permit purchases being made abroad at the latest quotations, and accordingly, as we have already stated, no extensive purchases have, as yet, been made by them; nor in the face of favourable appearances in our fields, is it likely that any large transactions will be entered into by them, unless encouragement for so doing be held out to them,—not by improved prices and falling duties on this side of the water, but by a material reduction occurring in the prices of grain generally, on the continent of Europe. The quantity of bonded grain and flour here at present is small, and therefore it is not very probable that any speculation will this season be made for the purpose of operating on the rates of duty, which consequently can only be regulated by supply and actual consumption this summer, and not by fictitious sales and purchases, as was the case during the last three summers, and of which the Chancellor of the Exchequer had at the time such strong reasons to complain in the small amount of duty collected on the immense quantities of foreign grain of all descriptions then entered for home use, which ought to have, each of these seasons, put into the Treasury three times more money than they actually did, and might thus have assisted considerably our public expenditure. The temptation now to repeat operations of this description does not exist, and it is not likely, therefore, that any pecuniary effort will be made to reduce the rates of duty during this season.

From the United States of North America the advices are dated early in the last month, but they communicate very little news of importance to the corn trade here. The letters on this subject continue to be filled with numerous complaints against our corn law system, by which we prefer grain grown at home to that of Foreign production. Our transatlantic brethren are concerned for the injury which we do to ourselves by not throwing our own fields out of cultivation, and our own workmen out of wages. They can abundantly supply us with wheat and flour so long as we can supply them with the precious metals in exchange for food. Money however is far scarcer with them than corn is with us, and accordingly shipments of flour continued to be made, for the benefit, no doubt, of John Bull, even without a repeal of his corn laws, and it is not improbable that shipments will continue to be made for the same reasons, though they cannot be to any great extent.

CURRENCY PER IMP. MEASURE.

FEB. 22.						
	Per Qr.			Per Qr.		
WHEAT, Essex and Kent, red ..	64	68	White.....	68	70 76	
Irish	60	62	Do.	64	74	
Old, red	62	74	Do.	66	70	
RYE, old	36	38	New.....	38	41	
BARLEY, Grinding 28 30 32 Malt ..	34	36	Chevalier ..	38	—	
Irish	27	28	Bere	24	25	
MALT, Suffolk and Norfolk	64	70	Brown.....	56	60	
Kingston and Ware	64	66	Chevalier ..	66	—	
OATS, Yorksh. & Lincolnsh., feed ..	24	26	Potato.....	25	26	
Youghall and Cork black ..	22	23	Cork, white ..	23	24	
Dublin	21	22	Westport ..	23	24	
Waterford, white	21	22	Black	23	23	
Newry	24	26				
Galway	18	19				
Scotch feed	25	26	Potato.....	25	26	
Clonmel	23	24	Limerick ..	22	24	
Londonderry	23	24	Sligo	22	24	
BEANS, Tick, new	38	40	Old	44	48	
PEAS, Grey	36	38	40	Maple	40	42
White	38	40	Boilers	40	42	
SEED, Rape..... 36l. 40l.		Irish.....	32l. 34l.	per last.		
Linseed.....	41	46				
English Red Clover, fine, 70	80	90	per cwt.			
FLOUR, Town-made 55 — Suffolk 44	46	pr sk. of 280 lbs.				
Steckton and Norfolk, 44	45					

FOREIGN GRAIN AND FLOUR IN BOND.

WHEAT, Dantzic	44	48			
Hamburg	40	42			
BARLEY	18	21			
OATS, Brew	22	24	Feed ...	16	18
BEANS	30	—			
PEAS	30	—			
FLOUR, American, per brl	28	—	Baltic ..	23	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Week ending						
Jan. 8th ..	61 9	33 6	21 6	32 6	30 10	30 11
15th ..	61 7	33 10	21 8	32 5	30 4	30 11
22nd ..	60 9	33 11	21 4	34 1	30 7	30 10
29th ..	60 9	33 3	21 7	31 5	30 4	30 3
Feb. 5th ..	60 7	31 11	21 7	32 11	30 6	30 10
12th ..	61 1	31 10	22 3	34 3	30 0	30 6
Aggregate Average of the six weeks which regulates the duty	61 1	33 6	21 8	32 9	30 9	30 6
Duties payable in London till Wednesday next inclusive, and at the Outports till the arrival of the mail of that day from London	26 8	13 10	15 3	21 3	11 0	11 0
Do. on grain from British possessions out of Europe	5 0	0 6	3 0	3 0	0 6	0 6

COMPARATIVE PRICES OF GRAIN.

WEEKLY AVERAGES by the Imp. Quarter, from the Gazette, of Friday last, Feb. 19th, 1841.			AVERAGES from the corresponding Gazette in the last year, Friday, Feb. 14th, 1840.		
	s.	d.		s.	d.
WHEAT	01	1	WHEAT	05	3
BARLEY	31	10	BARLEY	38	3
OATS	22	3	OATS	24	2
RYE	34	3	RYE	36	5
BEANS	40	0	BEANS	39	7
PEAS	39	6	PEAS	40	4

PRICES OF SEEDS.

FEB. 22.

We still continue to be very indifferently supplied with English Cloverseed, whilst from abroad scarcely any has yet been received. To-day there was an improved inquiry for the article, and superior qualities brought very high rates.

There was very little Canaryseed offering, and higher prices were generally asked.

Tares brought fully last Monday's currency.

Linseed was the turn cheaper.

Rapeseed maintained its previous high value. In other articles no alteration occurred.

Linseed, English, sowing	54	50	crushing	44	49	per qr.
Baltic	—	—				
Mediter. & Odessa	45	51				
Hempseed, small	34	36	large ..	38	40	
Coriander	10	16	old	18	20	per cwt.
Mustard, brown, new ..	16	21	white ..	12	13	pr. bush.
Turnip Seed, new Swedes	—	—		10	18	
Trefoil	16	38	fine new	38	44	
Rapeseed, English	34 1/2	38 1/2	foreign ..	—	—	per last.
Rye Grass, English	30	42	Scotch ..	18	40	
Tares, winter	—	—	Spring ..	9	10	
Large, foreign	—	—		8	9	
Clover, English, red	58	90	white ..	48	60	per cwt.
Flemish	40	68	do ..	45	48	
New Hamburg	52	65	do ..	46	60	nominal
Old do.	35	60	do ..	—	—	
French	50	62	do ..	—	—	
Old do.	40	54				
Canary, new	84	86	extra ..	88	89	
Caraway, old	50	54	new ..	48	52	

PRICES OF HOPS.

BOROUGH, FEB. 22.

There is a slight demand for Yearlings and Hops of the growth of 1840, but the holders are not disposed to sell at these rates.

	East Kent.		Mid. Kent.		Weald of Kent		Sus sex.		Farmham.
	s.	d.	s.	d.	s.	d.	s.	d.	s.
Bags, 1836	45	to 65	45	to 65	45	to 56	—	to —	—
Pocks, 1836	45	.. 75	45	.. 75	45	.. 65	45	.. 63	—
Bags, 1837	none		none		none		none		—
Pocks, 1837	—		—		—		—		—
Bags, 1838	80	.. 105	80	.. 105	75	.. 85	—		—
Pocks, 1838	85	.. 115	85	.. 115	84	.. 105	—		—
Bags, 1839	110	.. 150	110	.. 150	100	.. 120	—		—
Pocks, 1839	150	.. 190	150	.. 190	110	.. 150	105	.. 190	340, 300
Bags, 1840	140	.. 300	135	.. 290	—		—		—
Pocks, 1840	140	.. 320	140	.. 320	120	.. 200	120	.. 180	300, 355 to 450

POTATO MARKET.

SOUTHWARK, WATERSIDE, FEB. 22.

The supply of Potatoes received at the Waterside during the past week, coastwise and from the Channel Islands, is as follows—viz., from Yorkshire 203 tons; Scotland, 370; Jersey and Guernsey, 400; Devons, 60; Kent and Essex, 230;—total, 1,272 tons. The above is but a limited supply in the present clear state of the market, and good samples free from frost met with ready sale.

York Reds	—s. to 120s.	per ton.
Scotch do	—s. to 100s.	"
Devons	—s. to 100s.	"
Jersey and Guernsey		
Blues	—s. to 90s.	"
Kent & Essex Whites ..	85s. to 90s.	"

WOOL MARKET.

BRITISH.

FEB. 22.

There has been more business doing the past week, and more confidence shewn in the stability of the trade.

	s.	d.	s.	d.
Down Teggs	1	3 1/2	to 1	4
Half-bred Hogs	1	3	to 1	4
Ewes and Wethers	1	0 1/2	to 1	1 1/2
Flannel do.	1	0	to 1	2
Blanket Wool	0	6	to 0	9
Skin, Combing	0	10 1/2	to 0	10

LIVERPOOL, FEB. 20.

SCOTCH.—We have again to report another quiet week in the demand for Laid Highland Wool, but the few transactions have been at our quotations; the stock being low the holders are firm. There has been some demand for both good crossed and Cheviot at about our quotations; all kinds of low and heavy laid are neglected.

	s.	d.	s.	d.
Laid Highland Wool, per 24 lbs..	10	0	to 10	6
White do.	00	0	to 00	0
Laid Crossed do..unwashed..	10	9	to 11	6
Do. washed do.	11	9	to 12	6
Do. Cheviot unwashed do.	11	6	to 14	6
Do. washed	15	0	to 19	0
Cheviot white, washed	24	0	to 26	0

FOREIGN.

FEB. 22.

The imports into the port of London during the past week were 1238 bales, of which 615 were from Sydney, 447 from Spain, 128 from the Cape of Good Hope, and 48 from Bombay.

We have advices to the 15th of October from New South Wales. The Australian Auction Company had held some most extensive sales of live stock, comprising 2041 ewes, 1350 wethers, 124 rams and 3315 sheep with lamb, all at the average price of 14s. per head.

The accounts speak generally in favourable terms of the weather in the interior, by which the condition of the flocks appears to have been materially benefitted, so that we may reckon upon a further supply of the staple, more free from those defects which were so much complained of by the trade at the auctions last year.

At the Cape of Good Hope, Wool was quoted on the 20th of December last at 4d. to 1s. 1d. per lb.;

In the Hamburg wool market during the present month, several offers have been made for parcels fit for carding, but which had led to no sales of importance. It was generally thought that a good business would be done when the navigation is free again, and this keeps prices firm, but they are not expected to go higher. Fine Saxony, Silesian, and Prussian qualities were at 22s. to 27s., mid. at 19s. to 21s., mid. Polish, at 16s. to 18s., good ord., at 14s. to 15s., fine Mecklenburgh at 22s. to 25s., lambs at 20s. to 24s.; and fine Austrian and Bohemian at 18s. to 20s.

PRICES OF MANURES.

Subjoined are the present prices of several sorts of manure:—

Bone-dust, 21s. per qr. of 8 bushels.
Half-inch ditto, 20s. per qr. do.
Rape-dust, 6l. 15s. per ton.
Rags, 4l. to 4l. 10s. per ton.
Graves, 5l. to 5l. 10s. per ton.
Gypsum, 38s. per ton.
Salt, 2l. 5s. dirty, 2l. 15s. clean, per ton.
Lance's Carbon, 12s. 0d. per qr.
" Humus, 14s. 0d. "
Soap ashes, 10s. per ton.
Artificial Manure, 12s. per qr.
Poittevin's Patent Disinfected Manure, 13s. 6d. per qr.
Nitrate of Soda, 22s. 6d. to 23s. 0d. per cwt.
Nitrate of Potash or Saltpetre, 26s. to 31s. 0d. per cwt.

PRICES OF SHARES.

No. of Shares.	IRON RAILWAYS.	Price per Share.	Div. per Share per Ann.	Shares.	MINES.	Price.	Dividend
6,300	Birmingham & Derby Junc. 1001 sh	701a91		4,000	Alten 501 sh 121/2 pd		
6,300	Ditto 1/2 shares 251 sh 101 pd			1,000	Ditto New 151 sh 121/2 pd		
9,500	Ditto and Gloucester 1001 sh	801a11		10,080	Anglo Mexican (iss. 51 pm) 1001 sh		
15,000	Bristol and Exeter. 1001 sh 601 pd	301a11		337421	Ditto Subscription 251 sh		
9,300	Ditto and Glouce. 501 sh 21/2 pd			10,000	Ditto Mint 251 sh 101 pd		
7,500	Cheltenham & Great West. Union 1001 sh 621/2 pd	271/2a01		8,000	Blakenavon Iron & Coal 501 sh 451 pd	201	
5,000	Chester and Crewe 501 sh	521/2a01		2,000	Bolton 1501 sh		
3,000	Clarence (Durham) 1001 sh	301		1,000	Ditto New 501 sh 201 pd		
8,000	Dublin and Kilkenny 1001 sh 61/2 pd				Ditto Scrip 251 sh		
64,000	Eastern Counties 251 sh 251 pd	81a1/2		20,000	Bolivar Copper Company .. 151 sh	11a01	
64,000	Ditto Debentures. 81/6 ad. 21 pd	41/2a1/2		20,000	Ditto Ditto Scrip New .. 31 sh	31a01	
18,000	Edinburgh & Glasgow 501 sh 31/2 pd	261a01		10,000	Brazilian Imperial 351 sh 201 pd		
10,918	Grand Junction 1001 sh	3121a01	141 per ct		iss. 51 pm	101a121	
10,918	Ditto Half Shares 501 sh 401 pd	351	141 per ct	11,000	Ditto St. John Del Rey 201 sh 141/2 pd	111a21	
10,918	Ditto Quarter Shares 251 sh	281a01	11	20,000	British Iron Comp. 1001 sh 551 pd		
10,000	Great N. of England 1001 sh 801 pd	631a01		10,000	Candonga 201 sh 81/2 pd		
25,000	Great Western 1001 sh 651 pd	681/2a1/2		10,000	Copiapu 201 sh 121/2 pd	101	
25,000	Ditto Half Shares 501 sh	601/2a1/2		9,204	Hibernian 501 sh 111/2 pd	31a01	
37,500	Ditto Fifth 201 sh 41 pd	91a1/2		5,739	Mexican Company 1001 sh 581 pd	21a1/2	
5,000	Hull and Selby 501 sh	431a01		5,000	Minas Geraes 201 sh 121 pd		
36,000	London and Brighton 501 sh	421/2a1/2		14,460	Real del Monte registered Av. 1 sh		
26,800	London & Croydon. Av. 141/18 ad	121a1/2			Ditto Ditto unregistered 21a01		
6,324	Ditto Script 91 sh	121a1/2		17,066	Ditto Loan (Notes) 1501 sh		
20,000	London and Greenwich 501 sh	81/2a01	7s per sh	10,000	Rhymney Iron 501 sh	251a01	
9,000	Ditto New 101 sh	171a01/2	11 per sh	28,267	Unitei Mexican 401 sh 401 pd		
80,000	Ditto Debentures (various amounts) Ditto Script 61/2 each 31 pd	431a01		5,381	Ditto Scrip 21 pd	311a01	
24,000	London & Blackwall 251 sh 221/2 pd	171a01		8,957	Ditto ditto (New) 51 pd	311a01	
1,500	Leicester and Swannington. 501 sh	261	21/2				
2,100	Leeds and Selby 1001 sh		41 per sh				
15,100	Liverpool and Manchester. 1001 sh	1821	91/2 per ct				
11,475	Ditto Quarter Shares 251 sh	451	91/2 per ct				
7,968	Ditto Half Shares 501 sh	801a901	91/2 per ct				
26,000	London & S. Western, late London and Southampton Av. 881/17s 9d	571a81	21 per sh				
6,000	Do. Portsmouth Branch 501 sh 401 pd	431/2a01/2	51 per ct				
25,000	London & Birmingham. 1001 sh 901 pd	1001a71/2	81 per sh				
25,000	Ditto Quarter Shares 251 sh 51 pd	271/2a81/2	111/2 per sh				
31,250	Ditto New 321 sh	571/2a1/2					
13,000	Manchester & Leeds 1001 sh 701 pd	741a01					
18,000	Ditto Half Shares 501 sh 251 pd	271a01					
30,000	Manchester & Birmingham. 701 sh 701 pd	251a01					
15,714	Ditto ditto Extension 701 sh 71 pd	31a01					
10,000	Midland Counties 1001 sh	781a801					
10,000	Ditto 1/2 Shares of 251 51 pd	91/21a101					
15,000	North Midland 1001 sh	781a51					
15,000	Ditto Half Shares 401 sh 401 pd	361a71					
12,000	Northern & Eastern 1001 sh 401 pd						
3,762	Seymour and Wye Average 271 sh	451	211/2a per sh				
1,000	Stockton and Darlington. Average 1081/13s 4d	2501	141 per sh				
28,000	S. Eastern and Dover 501 sh 331 pd	171a01					
6,000	York & North Midland 501 sh	741a01	31/2a per sh				
	JOINT STOCK BANKS.						
10,000	Australasia Bank (Chartered) 401 sh	531	81 per ct				
5,000	Ditto New (Chartered) 401 sh	501/2a1/2					
10,000	Bank of Ceylon (Chart.) 251 sh 101 pd						
20,000	Bank of B. N. America (Chart.) 501 sh 401 pd	351	61 per ct				
20,000	Colonial Bank (Chart.) 1001 sh 251 pd	361	81 per ct				
2000	Com. Bk. of London 1000 sh 1001 pd						
4,000	Ionian State (Chart.) 251 sh 151 pd	111					
30,000	London and Westminster Bank 1001 sh 901 pd	241a1/2	61 per ct				
60,000	London Joint Stock Bank 501 sh	121/2a131	51 per ct				
12,432	Do New, issued at 11 pm 501 sh 101 pd						
20,000	National Bank of Ireland. 501 sh	171/2 pd	61 per ct				
10,000	Do. Provincial Bank of England 1001 sh 351 pd	351	61 per ct				
7,739	Do. New 201 sh issued at 21 10s pm 101 pd	101a01	61 per ct				
20,000	Provincial Bank of Ireland 1001 sh 251 pd	431	81 per ct				
4,000	Ditto New 101 sh	171/2	81 per ct				
20,000	Union Bank of Australia. 251 sh	321a01	50s pr sh				
12,000	Ditto New 251 sh 51 pd	111a1/2					
6,000	Union Bk. of London 501 sh 101 pd	91/2a101	51 per ct				
60,000	West of England and South Wales District Bank .. 201 sh 121/2 pd		61 per ct				
	MISCELLANEOUS.						
	Anti Dry Rot Company .. 181/2 sh						
	Assam Tea Company 501 sh 121/2 pd						
	Auction Mart 501 sh 201						20s pr sh
	Australian (Agricultural) 1001 sh						
	281/2s pd	301a401					35s pr sh
	British Rock and Patent Salt 501 sh 351 pd	131					
	Canada Company (Chartered) 1001 sh 521/2 pd	301a21					61 per ct
	Droitwich Patent Salt 251 sh	211					25s
	Equitable Reversionary Interest Society 1001 sh 601 pd						41 per ct
	General Steam Navigation Com- pany 151 sh 141 pd	251/21/2					18s pr sh
	Ditto Cemetery (Chartered) 251 sh						61 per ct
	Ditto New (Chartered) 251 sh						61 per ct
	Hungerford Market 1001 pd	321					20s pr sh
	Ditto Debentures (var. amounts) ..						51 per ct
	London Cemetery (Chartered) 201 sh	201a01					41 per ct
	London Corn Exchange 371/2 pd	301/2a01					11 per sh
	London Commercial Sale Rooms Average 751 sh	241					11
	London and Westminster Steam Boat Company 101 sh						51 per ct
	Mexican and South American Company 101 sh 71 pd	31					10s
	New Brunswick Land 1001 sh 601 pd						
	New Zealand Company 251 sh	251a01					51 per ct
	Rever-lonary Int. Society. 1001 sh	1081 ex d					51 per sh
	S. Australian Comp. 251 sh 201 pd	181a191					61 per ct
	South Metropolitan Cemetery (Chartered) 251 sh						
	Thames Tunnel 501 sh	101a1/2					
	Upper Canada Loan 51 per ct						
	Ditto 51 per ct						
	Van D. Land (Agricultural) Char- tered 1001 sh 181 pd	81a01					6s per sh
	West London and Westminster Cemetery 251 sh 221 pd						

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